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Bureau of Land Management

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October 2021 Utah Geothermal Competitive Lease Sale DOI-BLM-UT-0000-2021-0005-DNA

Determination of NEPA Adequacy



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Determination of NEPA Adequacy Worksheet

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October 2021 Utah Geothermal Competitive Lease Sale

DOI-BLM-UT-0000-2021-0005-DNA

LOCATION: Cedar City, and Fillmore Field Offices
Beaver, and Millard Counties

A. Description of the Proposed Action

A competitive Geothermal Lease Sale of certain public lands nominated by members of the Geothermal Industry, located within the area administered by the Cedar City Field Office (CCFO), and Fillmore Field Office (FFO), pursuant to the Geothermal Steam Act and 43 CFR § 3200; scheduled for October 2021. The Bureau of Land Management (BLM) is required to hold a competitive lease sale at least once every two-years if there are nominations pending (43 CFR § 3202.13). Previously, BLM Utah held a December 2020 Geothermal Lease Sale.

The BLM, Utah State Office (UTSO), proposes to offer, and subsequently issue for geothermal lease¹, 11 parcels comprised of approximately of 32,527 acres of federal mineral estate in Beaver and Millard Counties².

A total of two parcels comprised of 3,320 acres are on public lands administered by the Fillmore Field Office, and nine parcels encompassing 29,207.04 acres are on public lands managed by the Cedar City Field Office. Maps are presented in Appendix C – Figures/Maps.

¹ The BLM's definition of fluid minerals is that fluid minerals consist of gas and oil, defined in 43 CFR 3000.0-5, and geothermal, as defined in 43 CFR 3200.1. Geothermal resources are considered a fluid mineral resource by the BLM, and the Fish and Wildlife Service (FWS) just like oil and gas, therefore, when restrictions on leasable fluid minerals exist in the land use plan, those same restrictions and classifications also apply to geothermal exploration and development.

² The BLM received nominations within the Salt Lake Field Office. Additional time is needed to analyze these parcels prior to when the Notice of Competitive Lease Sale (NCLS) would be published. This postponement will allow BLM Utah the opportunity to further review the parcels; and BLM may consider offering them in a future Geothermal Competitive Lease Sale.

The 11 lease parcels identified within the Cedar City and Fillmore Field Office Resource Management Areas are located outside designated Greater Sage-grouse (GRSG) Priority and General Habitat Management Areas (PHMA & GHMA) and do not pose a threat to this species.

Utah has three geothermal power plants: the 39-megawatt Blundell plant, the 23-megawatt Cove Fort 1 plant and the 12-megawatt Thermo No. 1 near Milford and Sulphurdale, Utah. All three geothermal power plants located in Utah are binary cycle power plants.

Table 1: Location of the Parcels by Field Office

District – Field Office	Parcels/Acreage
Color Country District – Cedar City Field Office	9 parcels ³ /29,207.04 acres
West Desert District – Fillmore Field Office	2 parcels / 3,320.00 acres
Totals:	11 parcels/ 32,527.04 acres

The 2008 Programmatic Environmental Impact Statement for Geothermal Leasing in the 12 Western United States contains a summary of the Reasonably Foreseeable Development Scenario for Geothermal Development. The proposed action parcels are located within Cedar City Field Office and Fillmore Field Office.

Fillmore parcel 1261 is not located within any known geothermal classifications but within a geothermal energy zone. Cedar City/Fillmore parcel 7323, and Cedar City parcels 7327, 1303,1309 are not within any known geothermal classifications or energy zones.

Cedar City parcels 1315, 1320, 1326, 1340, 1354, 7340 are within a known geothermal energy zone and portions of Cedar City parcels 1340 and 7340 are within the Roosevelt Hot Springs known geothermal resource area. Parcels within both Cedar City/Fillmore 1354, 1340 and Fillmore parcels 1315 are within proximity to Cove Fort-Sulphurdale known geothermal resource area (Map 8 in 1987 ROD Warm Springs RMP) and within or close proximity to Roosevelt Hot Springs geothermal resource area. All six (6) parcels are within a known geothermal energy zone (Utah Geological Survey 2021).

The BLM anticipates moderate to high temperature geothermal resources (Utah Geological Survey 2002, Utah Geological Survey 2021) most likely to be discovered in the Cedar City and Fillmore parcels. Moderate temperature geothermal resources range from 194 to 302 degrees Fahrenheit; high temperature geothermal resources have temperatures greater than 302 degrees Fahrenheit (BLM 2021).

Geothermal resources are managed by the BLM and the Forest Service as fluid leasable minerals, which includes oil and gas; therefore, policies on closure of land to fluid minerals leasing or restrictions on the fluid minerals activities apply to both geothermal and oil and gas resources. At the maximum projected build out in 2025, up to 89,500 acres could be disturbed from exploration, drilling, and utilization and operational activities throughout the Western United States. This represents less than 0.01 percent of the 17 million areas of public land that have other commercial uses within the Western United States. Geothermal developments also tend to have relatively small operational footprints compared to other uses (such as wind farms and oil and gas fields) and are generally compatible with other uses, such as livestock grazing (refer to the 2008 Programmatic Environmental Impact Statement, pg ES-8) (U.S. Department of Agriculture, United States Forest Service and U.S. Department of the Interior, Bureau of Land Management 2008).

³ There are three parcels on the boundary of the Fillmore and Cedar City Field Offices. The majority of the acreage is located within the CCFO and are listed in Table 1 with CCFO. Those three parcels are 1340, 1354, 7323. Refer to Table 2 and Appendix A – Parcel List with Stipulations and Notices.

The 2008 Programmatic Environmental Impact Statement (PEIS) for Geothermal Leasing in the Western United States provided the estimated acreages of land disturbance (Table 2-8 in the PEIS). The actual area of disturbance will vary depending on site conditions, and if there are geothermal reservoirs. The 2008 Geothermal PEIS ranked Utah at the 5th spot for development potential. Most of the development would likely occur in northern Nevada, California, and Idaho, with the least amount in Wyoming and Montana (U.S. Department of Agriculture, United States Forest Service and U.S. Department of the Interior, Bureau of Land Management 2008).

Table 2. Location of the Nominated Geothermal Parcels

Parcel	Field Office	County	Acres
1261	Fillmore	Millard	2,040.00
1315	Fillmore	Millard	1,280.00
1340	Cedar City/Fillmore	Millard/Beaver	3,136.13
7340	Cedar City	Beaver	4,840.00
1326	Cedar City	Beaver	1,587.64
1320	Cedar City	Beaver	602.07
1354	Cedar City/Fillmore	Millard/Beaver	3,759.50
7323	Cedar City/Fillmore	Millard/Beaver	5,081.52
7327	Cedar City	Beaver	4,440.00
1303	Cedar City	Beaver	2,560.18
1309	Cedar City	Beaver	3,200.00
Total:	11 parcels	Beaver, and Millard Counties	32,527.04 acres

Based on review of the nominated parcels, additional stipulations and lease notices have been attached to the parcels (Appendix A – Parcel List with Stipulations and Notices).

Parcels available for geothermal leasing under the administration of Fillmore Field Office are subject to the 1986 Warm Springs Resource Management Plan (RMP), as amended, land use planning decisions. Parcels available for geothermal leasing under the administration of Cedar City Field Office are subject to the 1984 Cedar, Beaver, Garfield, Antimony RMP, as amended, land use planning decisions. All parcels would be issued with standard lease terms and conditions for development of the surface as provided in 43 CFR § 3200 and the BLM's Geothermal Noncompetitive Leases Handbook H-3210-1, and Competitive Leases Handbook H-3220-1.

Stipulations2008 Geothermal PEIS (U.S. Department of Agriculture, United States Forest Service and U.S. Department of the Interior, Bureau of Land Management 2008). The list of parcels, and applicable stipulations and lease notices, are presented in Appendix A – Parcel List with Stipulations and Notices.

A geothermal lease typically grants the lessee access to geothermal resources in the lease area for a period of 10 years. The terms of the lease require the lessee to show a certain level of diligence toward developing the geothermal resources within the lease area or the lease may be terminated. Once an area is developed for productive use of geothermal energy, the lease allows the lessee use of the resource for 40 years with a right of renewal for another 40 years. Geothermal exploration and production on public land conducted through leases is subject to terms and stipulations to comply with all applicable federal and state laws pertaining to various considerations for sanitation, water quality, wildlife, safety, and reclamation. Lease stipulations are site specific resource protections derived from the resource management plan. During the lease parcel review process stipulations may be applied where site specific protections overlap the parcel.

These stipulations are attached to the lease parcel prior to lease issuance.

If any of the parcels are not leased through competitive bidding, they may be leased non-competitively for two years following the competitive sale. Most lease applications are for a minimum of 640 acres. Lands not available for leasing are cited under Department of Interior, BLM, 43 CFR § 3201.11.

A lessee's right to explore and drill for geothermal resources at some location in the lease is implied by issuance of the lease. The act of leasing does not authorize any development or use of the surface of leased lands without further application by the operator and approval by the BLM. In the future, the BLM may receive a Geothermal Drilling Permit (GDP) on those parcels that are leased. If a GDP is received, the BLM conducts additional site-specific NEPA analysis before deciding whether to approve the GDP and what conditions of approval should apply.

Typical Phases of Geothermal Development

This DNA incorporates by reference the description of typical geothermal development phases from the 2008 Geothermal PEIS (Section 2.5.1, pages 2-40 through 2-48 and Section 2.5.2, pages 2-51 through 2-52). These sections of the 2008 Geothermal PEIS describe the activities and surface disturbance associated with the four sequential geothermal development phases: exploration, drilling, utilization, and reclamation and abandonment. The four geothermal development phases are briefly summarized in Figure 1.

All alternatives analyzed in the RMP and the 2008 Geothermal PEIS anticipated that the lands open to leasing could be leased and developed. The BLM is incrementally implementing the RMP decisions by proposing to lease specific parcels. Resource specialists review the area potentially affected to determine if there is new information or circumstances since the RMPs were developed, including the lease notices and stipulations that are applied, and if the reasonably foreseeable impacts are similar both quantitatively and qualitatively to those identified in the 2008 Geothermal PEIS document. Resource specialist's analysis and conclusions are documented in the Interdisciplinary Checklist (Appendix D – Interdisciplinary Parcel Review Team Checklist).

Binary Cycle Power Plants

Binary-cycle power plants typically use cooler fluids than flash steam plants (165 to 360°F [74 to 182°C]). The hot fluid from geothermal reservoirs is passed through a heat exchanger, which transfers heat to a separate pipe containing fluids with a much lower boiling point. These fluids, usually iso-butane or isopentane, are vaporized to power the turbine (Figure 1-3, Binary-cycle Power Plant in the 2008 Geothermal PEIS). The advantage of binary-cycle power plants is their lower cost and increased efficiency. These plants also do not emit any excess gas and, because they use fluids with a lower boiling point than water, are able to use lower temperature geothermal reservoirs, which are much more common. Most geothermal power plants planned for construction in the US are binary cycle (U.S. Department of Agriculture, United States Forest Service and U.S. Department of the Interior, Bureau of Land Management 2008).

Most geothermal fluids produced are re-injected back into the geothermal reservoir, via reinjection wells. Binary power plants utilize a closed loop system, therefore, well production and reinjection operate with no fluid loss. Fluids can be lost due to pipeline failures or surface discharge for monitoring/testing the geothermal reservoir. There would be no water loss or drawdown of the geothermal reservoir in binary systems (most existing plants), because the system is a closed loop that recaptures all water and condensate for reinjection into the same reservoir it is drawn from; the goal is to maintain reservoir pressure. The operator is required to protect other aquifer zones from mixing or being depleted.

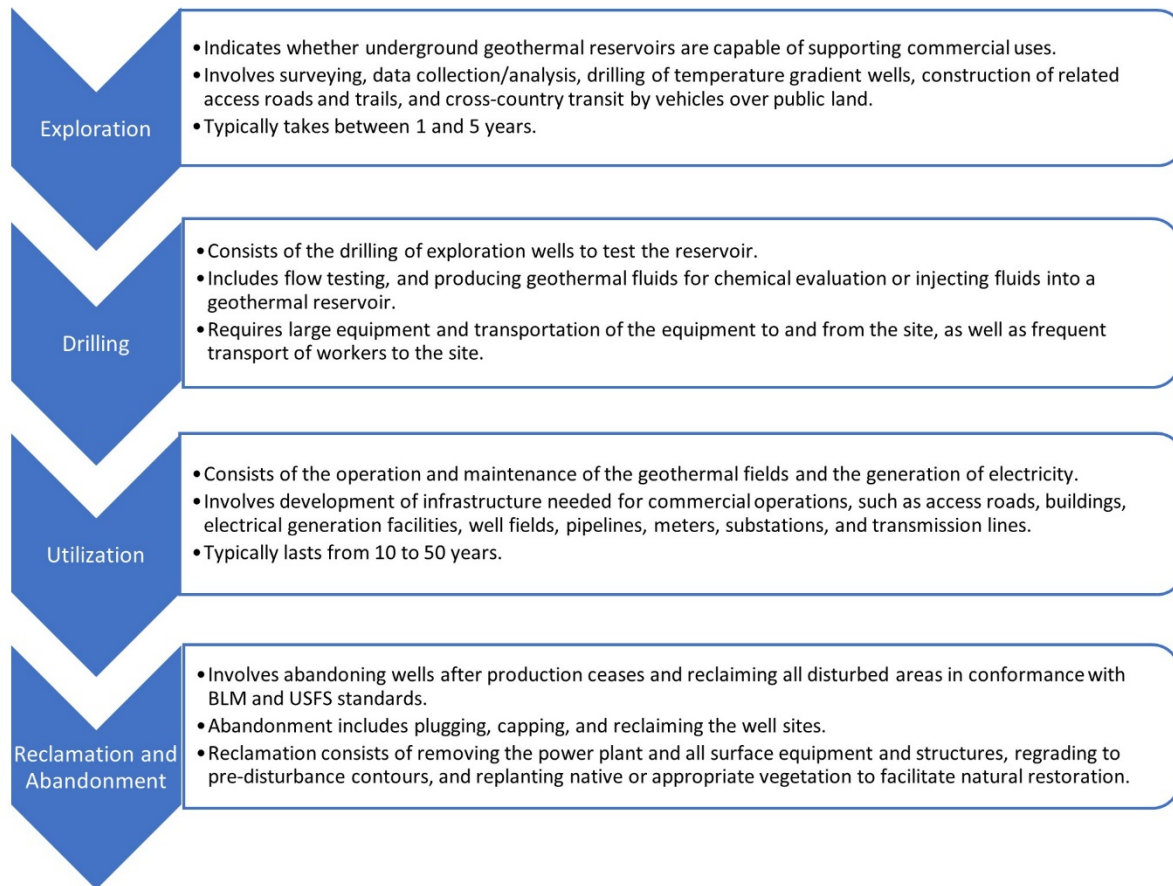


Figure 1. The four phases of geothermal development.

The Utah State Department of Natural Resources, Division of Water Rights has jurisdiction and authority over all geothermal resources and issues water rights and well construction permits. The Utah Division of Water Quality oversees fluid disposal plans and permits. Utah has established a Geothermal State Working Group, with leadership from the Utah Geological Survey. In August 2007, Utah developed state goals to reduce GHG emissions 15 percent by 2020 as part of its union with the Western Climate Initiative (U.S. Department of Agriculture, United States Forest Service and U.S. Department of the Interior, Bureau of Land Management 2008).

The 2008 Geothermal PEIS issued a comprehensive list of stipulations, best management practices, and procedures to serve as consistent guidance for future geothermal leasing for direct and indirect use. Relevant stipulations (Section 2.2.2 in the 2008 Geothermal PEIS) designed to minimize impacts on water resources and water quality include (1) no surface occupancy on water bodies, riparian areas, wetlands, playa, and 100-year floodplain; and (2) controlled surface use within 500 feet of riparian or wetland vegetation to protect the values and functions of these areas. Refer to Appendix A – Parcel List with Stipulations and Notices for the complete list of stipulations and notices that would be attached to the parcels.

In accordance with Best Management Practices (BMPs) (Appendix D in the 2008 Geothermal PEIS),

operators would be required to gain a clear understanding of the local hydrology and would avoid creating hydrologic conduits between aquifers. Operators would also develop a storm water management plan for the site to ensure compliance with applicable regulations and to prevent off-site migration of contaminated water or increased soil erosion. It is expected that these measures, along with the measures outlined to protect soil resources, would effectively minimize impacts on water resources and quality by protecting sensitive surface and ground water resources, protecting wetland and riparian habitats, reducing water quality degradation (i.e., contamination and sedimentation), and meeting applicable water quality standards.

Prior to leasing, the BLM would collaborate with appropriate state agencies, especially in the case of geothermal energy, as the states typically manage and have regulatory authority for water quality, water rights, and wildlife. The lessee would have to obtain an approved water right application from the Division of Water Rights prior to the BLM approving any federal GDP. Site-specific impacts on water resources, including groundwater and water importation, would be addressed as part of the environmental analysis for the permitting process. All development, utilization, and reclamation activities would be subject to further site-specific permitting and environmental analysis. The BLM would work with interested and affected parties to identify and resolve resource conflicts. Appropriate site-specific mitigation would be developed, as necessary (U.S. Department of Agriculture, United States Forest Service and U.S. Department of the Interior, Bureau of Land Management 2008).

B. Land Use Plan (LUP) Conformance

The BLM's definition of fluid minerals consists of gas and oil, defined in 43 CFR 3000.0-5, and geothermal, defined in 43 CFR 3200.1. Geothermal resources are considered a fluid mineral resource for mineral management by the BLM and the Fish and Wildlife Service (FWS); therefore, when restrictions on leasable fluid minerals exist in the land use plan, those same restrictions and classifications apply to all fluid mineral leasing, exploration, and development.

The proposed action is in conformance with the RMP because it is specifically provided for in the following decisions:

Color Country District

Cedar, Beaver, Garfield, Antimony Record of Decision, Resource Management Plan and Final Impact Statement as amended (BLM 1984)

Approved: October 1987

The Proposed Action specifically conforms to the following Land Use Plan decisions:

- Provide maximum leasing opportunity for oil, gas, and geothermal exploration and development by utilizing the least restrictive leasing categories necessary to adequately protect sensitive resources.

The nine parcels located within the CCFO are within standard and timing limitations/controlled surface use categories. The RMP designated approximately 1,071,400 acres of federal mineral estate open for continued fluid mineral leasing and development (RMP decisions on pages 18 through 20). Approximately 915,900 acres will be administratively available for leasing subject to standard lease terms, 145,100 acres would be subject to timing limitations/controlled surface use, and 10,400 acres would be available for leasing subject to no surface occupancy. *The RMP defines fluid minerals as: oil, gas, coal bed natural gas, and geothermal resources.* The RMP (with associated amendments) also describe specific stipulations that would be attached to new

leases offered in certain areas.

The Proposed Action is consistent with RMP decisions and their corresponding goals and objectives related to the management of (including but not limited to) air quality, cultural resources, recreation, riparian, soils, water, vegetation, fish & wildlife, and Areas of Critical Environmental Concern (ACEC).

West Desert District

Warm Springs Record of Decision, Resource Management Plan and Final Impact Statement as amended (BLM 1987)

Approved: March 1987

The Proposed Action specifically conforms to the following Land Use Plan decisions:

- Provide for discovery, development, and use of minerals on public land consistent with applicable laws and regulations.
- Require the least restrictive stipulations necessary to adequately protect other resources.
- Appropriate environmental stipulations would be attached to the lease when issued. Refer to Appendix A – Parcel List with Stipulations and Notices for the list of stipulations and notices that will be attached to the parcels.

The two parcels located within the FFO are within standard and timing limitations/controlled surface use categories. The RMP designated approximately 2,226,755 acres of federal mineral estate open for continued fluid mineral leasing and development (RMP Table 2-11, pg 45). Approximately 2,136,458 acres will be administratively available for leasing, subject to standard lease terms, 64,570 acres would be subject to timing limitations/controlled surface use, and 25,727 acres would be available for leasing subject to no surface occupancy. *The RMP defines fluid minerals as: oil, gas, coal bed natural gas, and geothermal resources.*

The Proposed Action is consistent with RMP decisions and their corresponding goals and objectives related to the management of (including but not limited to) air quality, cultural resources, recreation, riparian, soils, water, vegetation, fish & wildlife, and Areas of Critical Environmental Concern (ACEC).

C. Identify the applicable National Environmental Policy Act (NEPA) documents and other related documents that cover the proposed action.

List by name and date all applicable NEPA documents that cover the proposed action:

- 2008 Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States (PEIS), Record of Decision (ROD) signed December 17, 2008. (U.S. Department of Agriculture, United States Forest Service and U.S. Department of the Interior, Bureau of Land Management 2008, U.S. Department of Agriculture, United States Forest Service and U.S. Department of the Interior, Bureau of Land Management 2008)
- 1987 Warm Springs RMP /Final Environmental Impact Statement (FEIS) and ROD, as amended by the 2015 GRSG Record of Decision and GRSG ARMPA. (BLM 1987)
- 1988 Warm Springs RMP Oil and Gas Leasing Implementation EA (BLM 1988)
- 1987 Cedar, Beaver, Garfield, Antimony RMP/FEIS and ROD, as amended by the 2015 GRSG Record of Decision and GRSG ARMPA. (BLM 1984)
- 2016 Utah Geothermal Lease Sale, DOI-BLM-UT-0000-2016-0002-EA (BLM 2016)
- 2016 Cove Fort Phase II Expansion, DOI-BLM-UT-C010-2015-0015-EA (BLM 2016)

- 2008 Oil and Gas Leasing in the Fillmore Field Office, DOI-BLM-UT-W020-2008-0050-EA (BLM 2008)

The following are other documents that are applicable for site background information⁴ :

- Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, 4th edition, revised 2007. (United States Department of the Interior and United States Department of Agriculture 2007).
- Appendix B, Best Management Practices-Mitigation Measures in the 2008 Geothermal PEIS ROD. (U.S. Department of Agriculture, United States Forest Service and U.S. Department of the Interior, Bureau of Land Management 2008)
- WO-IM-2013-033 Fluid Minerals Operations-Reducing Preventable Causes of Direct Wildlife Mortality.
- WO-IM-2009-022 Geothermal Leasing under the Energy Policy Act of 2005
- WO-IM-2007-021 Integration of Best Management Practices into Application for Permit to Drill Approvals and Associated Rights-of-Way.
- 2020 State Protocol between the BLM Utah and Utah State Historic Preservation Office (BLM 2020)

D. NEPA Adequacy Criteria

- 1. Is the new proposed action a feature of, or essentially similar to, an alternative analyzed in the existing NEPA document(s)? Is the project within the same analysis area, or if the project location is different, are the geographic and resource conditions sufficiently similar to those analyzed in the existing NEPA document(s)? If there are differences, can you explain why they are not substantial?**

Yes. Geothermal leasing was evaluated and analyzed in the 2008 Geothermal PEIS associated with the Cedar, Beaver, Garfield, Antimony RMP, and Warm Springs RMP. A ROD was reached on the Geothermal PEIS in December 2008 which amended the Cedar, Beaver, Garfield, Antimony RMP. Notices and Best Management Practices and the FEIS analysis is applicable to both the Cedar, Beaver, Garfield, Antimony RMP and the Warm Springs RMP. Therefore, the resource allocations made are current.

Additionally, geothermal leasing was also evaluated and analyzed in the EISs associated with the respective RMPs. Therefore, the resource allocations made are still accurate, and current. The parcels within Cedar City and Fillmore Field Office proposed for lease are located within areas that are open for fluid mineral leasing either with standard stipulations, with standard and special stipulations (controlled surface use), or open to leasing with no surface occupancy.

The actions and potential impacts have not changed from those disclosed in the 2008 Geothermal PEIS, the Warm Springs RMP/FEIS, and the Cedar, Beaver, Garfield, Antimony RMP/FEIS, as well as the referenced NEPA documents located in section C.

- 2. Is the range of alternatives analyzed in the existing NEPA document(s) appropriate with**

⁴ More information can be found at the BLM Geothermal Energy Guidance website at:
<https://www.blm.gov/programs/energy-and-minerals/renewable-energy/geothermal-energy/geothermal-guidance>

respect to the new proposed action (or existing proposed action), given current environmental concerns, interests, and resource values?

Yes. The nominated geothermal parcels were reviewed with respect to the range of alternatives analyzed in the existing NEPA documents.

The 2008 Geothermal PEIS identified three alternatives:

- Alternative A- No Action: Continuation of Current Management
- Alternative B- Proposed Action and Amendments
- Alternative C- Leasing Lands near Transmission Lines

Alternative B was selected as the proposed plan amendment based on: (1) its consistency with the requirements of the Energy Policy Act of 2005, (2) its balanced use and protection of resources, (3) the final 2008 Geothermal PEIS's analysis of potential environmental impacts, and (4) the comments and recommendations from agencies, states, stakeholders, and the public.

Alternative B is structured to be consistent with the congressional mandate of the 2005 Energy Policy Act to facilitate geothermal leasing by amending land use plans to allocate geothermal resources and adopt stipulations and procedures for leasing.

3. Is existing analysis adequate in light of any new information or circumstances (such as, rangeland health standards assessment; recent endangered species listings, updated list of BLM sensitive species)? Can you reasonably conclude that new information and new circumstances would not substantially change the analysis of the new proposed action?

Yes. The anticipated impacts to resources have not changed. The 11 lease parcels identified within the Cedar City and Fillmore Field Office Resource Management Areas are located outside designated GRSG PHMA & GHMA and do not pose a threat to this species. There are not any federally listed plants or unoccupied potential habitat within 300 feet of any parcel.

On October 2, 2015, the U.S. Fish and Wildlife Service (USFWS) determined that the Greater Sage-Grouse (GRSG) did not warrant protection under the Endangered Species Act (ESA); therefore, the GRSG was not listed as Endangered or Threatened and in addition, the USFWS withdrew the species from the Candidate Species List. This finding was due to the conservation efforts implemented by Federal, State, and private landowners, including the BLM Utah Greater Sage-Grouse Approved Resource Management Plan Amendment (ARMPA) and Final Environmental Impact Statement (FEIS), Record of Decision signed September 15, 2015. After the 2015 GRSG ARMPA was adopted, the BLM coordinated with the State of Utah and the Utah Division of Wildlife Resources to identify inconsistencies between the BLM's 2015 GRSG ARMPA and the states' GRSG conservation plans and strategies.

The 2008 Geothermal PEIS analyzed impacts from geothermal activities to GRSG and its habitat on pages 4-80 through 4-84. The 2008 Geothermal PEIS also provided for the inclusion of BMPs in Appendix D, which provides for avoidance, minimization, or mitigation of negative impacts on vulnerable wildlife (pg D-13). Therefore, the new circumstances (stipulations and lease notices) and ARMPA FEIS regarding GRSG would not substantially change the analysis of the new proposed action and the analyses conducted in existing NEPA documents are still valid. However, the 11 lease parcels identified within the Cedar City

and Fillmore Field Offices are located outside designated GRS G PHMA & GHMA and do not pose a threat to this species.

Endangered Species Act of 1973

The effects of Geothermal leasing development on threatened and endangered (T&E) species were analyzed through Section 7 consultation on existing Utah BLM resource Management Plans, as follows:

- 2007 Biological Opinion for the Existing Utah BLM Resource Management Plans (Cons. #6-UT-07-F-0018)

The October 2021 geothermal lease action is in compliance with T&E species management outlined in accordance with the requirements under the FLMPA and the NEPA. While Federal regulations and policies require the BLM to make its public land and resources available on the basis of the principle of multiple-use, it is BLM policy to conserve special status species and their habitats, and to ensure that actions authorized by the BLM do not contribute to the need for the species to become listed as T&E by the USFWS.

For lease sales conducted on listed species covered by these consultation actions, the BLM regularly coordinates with the USFWS to assure agreement that the Proposed Action (leasing): 1) does not exceed the impacts analyzed in the PRMP and BA/BO; and 2) would not exceed the effects contained in the associated USFWS biological opinion(s) concurring with BLM's Not Likely to Adversely Affect (NLAA) determinations.

Coordination with USFWS is ongoing.

National Historic Preservation Act (NHPA) of 1966

The BLM prepared a cultural resources specialist report to document its reasonable and good faith effort to identify effects this undertaking may have on historic properties, as required by Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C 306108). This report has been completed in compliance with the *State Protocol Agreement Between the Bureau of Land Management Utah and the Utah State Historic Preservation Office* (State Protocol) Stipulation III.

The Advisory Council for Historic Preservation's (ACHP) document titled Meeting the "Reasonable and Good Faith" Identification Standards in Section 106 Review, from https://www.achp.gov/sites/default/files/guidance/2018-05/reasonable_good_faith_identification.pdf, outlines the steps to determine when a reasonable and good faith identification effort has been met. The ACHP states:

Prior to beginning the identification stage in the Section 106 process, the regulations (at 36 CFR § 800.4) require the federal agency to do the following:

- Determine and document the APE [Area of Potential Effect] in order to define where the agency will look for historic properties that may be directly or indirectly affected by the undertaking;
- Review existing information on known and potential historic properties within the APE, so the agency will have current data on what can be expected, or may be encountered, within the APE;
- Seek information from others who may have knowledge of historic properties in the area. This includes the State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer and, as appropriate, Indian tribes or Native Hawaiian organizations who may have concerns about historic properties of religious and cultural significance to them within the APE.

Following these initial steps, the regulations (36 CFR § 800.4(b) (1)) set out several factors the agency must consider in determining what is a “reasonable and good faith effort” to identify historic properties:

Take into account past planning, research and studies; the magnitude and nature of the undertaking and the degree of federal involvement; the nature and extent of potential effects on historic properties; and the likely nature and location of historic properties within the APE. The Secretary of the Interior’s standards and guidelines for identification provide guidance on this subject. The agency official should also consider other applicable professional, state, tribal, and local laws, standards, and guidelines. The regulations note that a reasonable and good faith effort may consist of or include ‘background research, consultation, oral history interviews, sample field investigation, and field survey.’

For geothermal lease sales, the BLM’s identification efforts include: (1) completing a comprehensive "records review," which is an intensive review and analysis of available pertinent cultural resource records and information for each parcel and the surrounding areas that are included in the undertaking APE; and (2) proactively seeking information from others who may have knowledge of historic properties in the area. The BLM's identification efforts that are described in this report for the October 2021 geothermal lease sale undertaking are consistent with the direction provided in multiple Interior Board of Land Appeals (IBLA) decisions/orders, including Mandan, Hidatsa, and Arikara Nation, 164 IBLA 343 (2005), Southern Utah Wilderness Alliance, IBLA 2002-334, Evans-Barton, LTD, IBLA 2008-17 (2008), and Earth Power Resources, Inc., D 2010-126 (2011).

On April 29, 2021, the UTSO sent letters to potentially interested consulting parties inviting them to request consulting party status for the October 2021 Geothermal Lease Sale: Utah Rock Art Research Association (URARA), Utah School and Institutional Trust Lands Administration (SITLA), Public Lands Policy Coordinating Office (PLPCO), Utah Professional Archaeological Council (UPAC), LDS Church History, National Park Service (NPS) National Trails Office, Box Elder County, Millard County, and Beaver County. Additionally, on May 17, 2021, the UTSO posted data and instructions on ePlanning for anyone with demonstrated interest to request consulting party status for the October 2021 Geothermal Lease Sale.

As of May 20, 2021, PLPCO, URARA and the NPS National Trails Office have requested consulting party status for the undertaking. Consultation is ongoing.

On May 3, 2021, the BLM sent invitations to participate in government-to-government consultations to: Confederated Tribes of the Goshute, Paiute Indian Tribe of Utah, Skull Valley Band of Goshute, Hopi Tribe, Ute Indian Tribe, Northwestern Band of Shoshone, Eastern Shoshone Tribe, Te-Moak Tribe of Western Shoshone, and the Shoshone-Bannock Tribes of the Fort Hall Reservation.

On May 14, 2021, the BLM additionally invited the Kaibab Band of Paiute Indians to participate in government-to-government consultation.

On [ongoing], the BLM sought concurrence regarding its finding of effect for the October 2021 Geothermal Lease Sale Cultural Resources Report with Utah SHPO. On [ongoing], the BLM received [ongoing] from SHPO.

NHPA Coordination

The BLM utilized and coordinated the NEPA public participation requirements to assist the agency in satisfying the public involvement requirements under Section 106 of the NHPA [16 U.S.C. 470(f) pursuant

to 36 CFR 800.2(d)(3)]. The information about historic and cultural resources within the area potentially affected by the proposed project/action/approval will assist the BLM in identifying and evaluating impacts to such resources in the context of both NEPA and Section 106 of the NHPA. The BLM will consult with Indian tribes on a government-to-government basis in accordance with Executive Order 13175 and other policies, if requested by any Tribe. If Tribal concerns are identified, including impacts on Indian trust assets and potential impacts to cultural resources, they will be given due consideration.

Government to Government consultations with Native American Tribes were initiated on May 3, 2021 and May 14, 2021. To date, no responses have been received. No specific religious or other concerns have been raised to date; however, the consultation process is ongoing (Table 3).

4. Are the direct, indirect, and cumulative effects that would result from implementation of the new proposed action similar (both quantitatively and qualitatively) to those analyzed in the existing NEPA document?

Yes. The RMPs and the 2008 Geothermal PEIS documents state there would be no direct impacts to issuing leases for future geothermal exploration, development, and production activities. Indirect impacts and cumulative effects to resources were considered in the “reasonably foreseeable development scenario”. The indirect effects of allowing these nominated parcels to be leased are within the range of the reasonably foreseeable development scenarios identified in both NEPA documents. The proposed parcels are within lands designated as available for geothermal leasing and development.

The potential direct, indirect, and cumulative effects resulting from leasing are similar qualitatively and quantitatively to those analyzed and determined to be available for geothermal leasing in the RMPs and the 2008 Geothermal PEIS. Additionally, the BLM reviewed the nominated parcels and concluded that the parcels nominated for the October 2021 Lease Sale are similar in character, natural resources, geography, development potential to the parcels analyzed in the 2016 Utah Geothermal Lease Sale EA (BLM 2016), and 2016 Cove Fort Phase II Expansion EA (BLM 2016).

If development were to occur, the development would likely be of a similar nature and type (e.g., similar pad construction, location types, access roads, power supply and other ancillary facilities) to the development that may occur on previously leased parcels. The BLM applied the same or similar Lease Notices and Stipulations (where appropriate) to mitigate the potential direct, indirect, and cumulative effects of leasing and possible future development.

5. Are the public involvement and interagency review associated with existing NEPA document(s) adequate for the current proposed action?

Yes. Extensive public outreach and involvement, and interagency review procedures and findings made through the development of the RMPs/EIS and the 2008 Geothermal PEIS are adequate for the proposed leasing of nominated parcels for the October 2021 Geothermal Lease Sale.

Scoping Period

The UTSO sent letters/memorandum to the following stakeholders: the National Park Service (NPS), the United States Fish and Wildlife Service (USFWS), the United States Forest Service (USFS) and the State of Utah’s Public Lands Policy Coordination Office (PLPCO), Division of Wildlife Resources (UDWR) and the School Institutional Trust Lands Administration (SITLA) to notify them of the pending lease sale,

solicit comments and concerns on the preliminary parcel list. The BLM also provided GIS shapefiles depicting the proposed sale parcels to contact points within the NPS and UDWR. Consultation and coordination efforts are summarized above in #3. Persons, agencies, and organizations that were contacted or consulted during the preparation of this DNA are identified in Table 3.

Comment Period

The DNA will be posted and available for a 30-day public review and comment period on June 10, 2021 (06/10/2021-07/09/2021) for this geothermal lease sale at <https://eplanning.blm.gov/eplanning-ui/project/2013757/510>. The documents are made available online at the Utah State Office's Geothermal Leasing Webpage and the BLM's NEPA Register. The NEPA Register is a BLM environmental information internet site and can be accessed online at: <https://eplanning.blm.gov/eplanning-ui/home>.

UTSO Geothermal Leasing program webpage can be accessed at: <https://www.blm.gov/programs/energy-and-minerals/renewable-energy/geothermal-energy/regional-information/utah>.

The BLM received [ongoing] public comment letters from [ongoing]. [Ongoing] comment letters were substantive comments as defined in the NEPA Handbook, H-1790-1, (section 6.9.2.). The comment letters and the BLM's responses to the points made in the letters will be contained in Appendix F. Minor changes to this [ongoing] may be made as a result of some comments that will be received during the 30-day public comment period.

E. Persons/Agencies/BLM Staff Consulted:

Table 3. List of Contacts and Findings.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
National Park Service	Coordinated with as a potential Stakeholder in the affected lands.	A memorandum transmitting the preliminary list of parcels was sent on April 27, 2021, followed up on May 12, 2021 with an email including GIS shapefiles. Coordination is ongoing.
United States Fish and Wildlife Service	Coordinated/consulted with for compliance with the Endangered Species Act.	A memorandum transmitting the preliminary list of parcels was sent on April 27, 2021 and the corresponding shapefiles were sent on May 18, 2021. Coordination is ongoing.
United States Forest Service	Coordinated with as a potential Stakeholder in the affected lands.	A letter transmitting the preliminary list of parcels was sent on April 27, 2021. Comments or concerns were not expressed.
Public Lands Policy Coordination Office/ Utah Division of Wildlife Resources	Coordinated with as leasing program partner.	Letters transmitting the preliminary list of parcels were sent on April 27, 2021. An e-mail with GIS shapefiles was sent to UDWR on April 22, 2021 to satisfy the requirements of IM-2012-43. Comments or concerns were not expressed.
State Institutional Trust Lands Administration	Coordinated with as a potential Stakeholder in the affected lands.	A letter transmitting the preliminary list of parcels was sent on April 27, 2021. Comments or concerns were not expressed.
State Historic Preservation Office and Consulting Parties	Consultation as required by NHPA (16 USC 470)	On [ongoing], a No Adverse Effect determination was mailed to the SHPO. On [ongoing] SHPO concurrence was received. Coordination is ongoing.
Various Tribal Governments	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1996), NHPA (54 USC 300301-307108), and Executive Order 13175.	On May 3 and 14, 2021, the UTSO sent an invitation to consult letter to each tribe. Tribal consultation is ongoing. Coordination and consultation will continue up until the lease auction, at the request of any tribe.

Table 4. Preparers.

Name	Title	Responsible for the Following Section(s) of this Document
Melissa Jennings	Natural Resource Specialist	Project Lead, Geothermal Leasing Program, NEPA Compliance
Angela Wadman	Natural Resource Specialist	Geothermal Leasing Program Coordinator, NEPA Compliance
Tylia Varilek	Archaeologist	Geothermal Leasing Program, NHPA Compliance
Sheri Wysong	Natural Resource Specialist	Geothermal Leasing Program, NLCS and Recreation
Dave Cook	Wildlife Biologist	Geothermal Leasing Program, Wildlife
Christine Fletcher	Wildlife Biologist/Utah Sage Grouse Coordinator	Geothermal Leasing Program, GRSG
Jared Dalebout	Hydrologist	Geothermal Leasing Program, Wetland, Riparian, Hydrology
Aaron Roe	Botanist	Geothermal Leasing Program, USFWS Consultation
Erik Vernon	Air Quality Specialist	Geothermal Leasing Program, Air Quality; Greenhouse Gases.
Melinda Moffitt	Fluid Minerals Branch Chief (Acting)	Geothermal Leasing Program Review and Oversight

CONCLUSION

Plan Conformance:

- ☐ This proposal conforms to the applicable land use plans.
- ☐ This proposal does not conform to the applicable land use plans

Determination of NEPA Adequacy

- ☐ Based on the review documented above, I conclude that this proposal conforms to the applicable land use plans and that the NEPA documentation fully covers the proposed action and constitutes BLM's compliance with the requirements of the NEPA.
- ☐ The existing NEPA documentation does not fully cover the proposed action. Additional NEPA documentation is needed if the project is to be further considered.

Decision Documentation:

- ☐ A new decision will be prepared.
- ☐ The proposed action is a subset of existing decisions signed in September 2015 (GRSG ARMPA), December 2008 (Geothermal PEIS), March 1987 (Warm Springs RMP), and October 1987 (Cedar, Beaver, Garfield, Antimony RMP).

Signature of the Responsible Official

Date

Note: The signed Conclusion on this Worksheet is part of an interim step in the BLM's internal decision process and does not constitute an appealable decision. However, the lease, permit, or other authorization based on this DNA is subject to appeal under 43 CFR Part 4 and the program-specific regulations.

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Appendices

- A. Parcel List with Stipulations and Notices
- B. Stipulations and Notices
- C. Figures (Maps)
- D. Interdisciplinary Parcel Review Team Checklist
- E. Acronyms/Abbreviations
- F. Comments and Responses [Reserved]

Appendix A – Parcel List with Stipulations and Notices

In addition to the parcel specific Stipulations and Notices listed below, the stipulations and notices presented in this table would be applied to **ALL** parcels:

Stipulations	Notices
HQ-CR-1: Cultural Resources Protection	HQ-MLA-1: Notice to Lessee (MLA)
HQ-TES-1: Threatened & Endangered Species Act	

1261 FFO

UT-2021-10-1261 UT, Fillmore Field Office, Bureau of Land Management, PD <u>T. 19 S., R. 8 W., SALT LAKE MER</u> Sec. 14, E1/2SW1/4, SE1/4; Sec. 22, SE1/4NE1/4, S1/2; Sec. 23, W1/2; Sec. 26, SE1/4NW1/4, NW1/4SW1/4; Sec. 27, N1/2, SW1/4, NE1/4SE1/4, S1/2SE1/4; Sec. 34, E1/2, N1/2NW1/4, SE1/4SW1/4; Millard County 2,040 Acres EOI# UT00017586	
Stipulations	Notices
UT-GEO-S-07: CSU – Soil Severe Erosion	UT-GEO-LN-02: Monitoring
UT-S-58: NSO – Sunstone Knoll Rockhounding Area	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-S-131: CSU – Critical Watershed (Perennial Streams and Springs)	UT-GEO-LN-04: Geotechnical Analysis
	UT-GEO-LN-05: Fossils
	UT-GEO-LN-06: Migratory Birds
	UT-GEO-LN-07: Water
	UT-GEO-LN-08: Mining Claims
	UT-GEO-LN-09: Water Resources
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	UT-LN-64: National Historic Trails or Historic Properties
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls

	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

1340 CCFO/FFO**UT-2021-10-1340**

UT, Cedar City Field Office, Bureau of Land Management, PD

T. 26 S., R. 9 W., SALT LAKE MER

Sec. 5, SE1/4;
 Sec. 6, SE1/4NE1/4;
 Sec. 8, ALL;
 Sec. 9, W1/2;
 Sec. 16, N1/2NW1/4;
 Sec. 17, E1/2.

T. 26 S., R. 10 W., SALT LAKE MER

Sec. 1, ALL;
 Sec. 12, LOTS 1, 2;
 Sec. 12, W1/2NE1/4, NW1/4;
 Sec. 13, LOTS 1 thru 4;
 Sec. 13, W1/2NE1/4, W1/2SE1/4;
 Sec. 14, N1/2.

Millard County (726.97 ac)

Beaver County (2,409.16 ac)

3,136.13 Acres

EOI# UT00017595

Stipulations	Notices
UT-GEO-S-01: NSO – National Register of Historic Places, Cultural Resources (Sites, Structures, Objects, and Traditional Use Areas)	UT-GEO-LN-02: Monitoring
UT-GEO-S-02: NSO – Traditional Cultural Properties	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-GEO-S-03: NSO – Riparian Habitat	UT-GEO-LN-04: Geotechnical Analysis
UT-GEO-S-04: CSU – Riparian Habitat Buffer	UT-GEO-LN-05: Fossils
UT-GEO-S-07: CSU – Soil Severe Erosion	UT-GEO-LN-06: Migratory Birds
UT-S-131: CSU – Critical Watershed (Perennial Streams and Springs)	UT-GEO-LN-07: Water
UT-S-280: TL – Bald Eagle Winter Habitat	UT-GEO-LN-08: Mining Claims
	UT-GEO-LN-09: Water Resources
	UT-LN-13: Pronghorn Winter Habitat
	UT-LN-14: Pronghorn Fawning Habitat
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-47: Fisheries
	UT-LN-49: Utah Sensitive Species

	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-55: Water and Watershed Protection
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	UT-LN-64: National Historic Trails or Historic Properties
	UT-LN-71: Paleontological
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

7340 CCFO**UT-2021-10-7340**

UT, Cedar City Field Office, Bureau of Land Management, PD

T. 26 S., R. 9 W., SALT LAKE MER

Sec. 9, E1/2;
 Sec. 10, ALL;
 Sec. 14, ALL;
 Sec. 15, ALL;
 Sec. 20, E1/2;
 Sec. 21, ALL;
 Sec. 22, ALL;
 Sec. 23, ALL;
 Sec. 29, E1/2, SE1/4SW1/4.

Beaver County

4,840 Acres

EOI# UT00017594

Stipulations	Notices
UT-GEO-S-01: NSO – National Register of Historic Places, Cultural Resources (Sites, Structures, Objects, and Traditional Use Areas)	UT-GEO-LN-02: Monitoring
UT-GEO-S-02: NSO – Traditional Cultural Properties	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-GEO-S-03: NSO – Riparian Habitat	UT-GEO-LN-04: Geotechnical Analysis
UT-GEO-S-04: CSU – Riparian Habitat Buffer	UT-GEO-LN-05: Fossils
UT-GEO-S-08: NSO – Waterbodies, Wetlands, and/or 100-Year Floodplains	UT-GEO-LN-06: Migratory Birds
UT-S-239: TL – Seasonal Mule Deer	UT-GEO-LN-07: Water
UT-S-280: TL – Bald Eagle Winter Habitat	UT-GEO-LN-08: Mining Claims
	UT-GEO-LN-09: Water Resources

	UT-LN-13: Pronghorn Winter Habitat
	UT-LN-14: Pronghorn Fawning Habitat
	UT-LN-20: Rocky Mountain/Desert Bighorn Sheep Crucial Lambing and Rutting Habitat
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-47: Fisheries
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-55: Water and Watershed Protection
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

1326 CCFO**UT-2021-10-1326**

UT, Cedar City Field Office, Bureau of Land Management, PD

T. 26 S., R. 9 W., SALT LAKE MER

Sec. 30, LOTS 1 thru 4;

Sec. 30, E1/2NW1/4, NE1/4SW1/4.

T. 26 S., R. 10 W., SALT LAKE MER

Sec. 21, W1/2;

Sec. 25, ALL;

Sec. 28, W1/2.

Beaver County

1,587.64 Acres

EOI# UT00017593

Stipulations	Notices
UT-GEO-S-01: NSO – National Register of Historic Places, Cultural Resources (Sites, Structures, Objects, and Traditional Use Areas)	UT-GEO-LN-02: Monitoring
UT-GEO-S-02: NSO – Traditional Cultural Properties	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-GEO-S-03: NSO – Riparian Habitat	UT-GEO-LN-04: Geotechnical Analysis
UT-GEO-S-04: CSU – Riparian Habitat Buffer	UT-GEO-LN-05: Fossils
UT-GEO-S-08: NSO – Waterbodies, Wetlands, and/or 100-Year Floodplains	UT-GEO-LN-06: Migratory Birds
UT-S-280: TL – Bald Eagle Winter Habitat	UT-GEO-LN-07: Water
	UT-GEO-LN-08: Mining Claims

	UT-GEO-LN-09: Water Resources
	UT-LN-13: Pronghorn Winter Habitat
	UT-LN-14: Pronghorn Fawning Habitat
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-47: Fisheries
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-55: Water and Watershed Protection
	UT-LN-71: Paleontological
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

1320 CCFO**UT-2021-10-1320**

UT, Cedar City Field Office, Bureau of Land Management, PD

T. 27 S., R. 10 W., SALT LAKE MER

Sec. 34, LOTS 1 thru 4, 6;

Sec. 34, W1/2SE1/4;

Sec. 35, W1/2.

Beaver County

602.07 Acres

EOI# UT00017592

Stipulations	Notices
UT-GEO-S-01: NSO – National Register of Historic Places, Cultural Resources (Sites, Structures, Objects, and Traditional Use Areas)	UT-GEO-LN-02: Monitoring
UT-GEO-S-02: NSO – Traditional Cultural Properties	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-GEO-S-03: NSO – Riparian Habitat	UT-GEO-LN-04: Geotechnical Analysis
UT-GEO-S-04: CSU – Riparian Habitat Buffer	UT-GEO-LN-05: Fossils
UT-GEO-S-08: NSO – Waterbodies, Wetlands, and/or 100-Year Floodplains	UT-GEO-LN-06: Migratory Birds
UT-S-280: TL – Bald Eagle Winter Habitat	UT-GEO-LN-07: Water
	UT-GEO-LN-08: Mining Claims
	UT-GEO-LN-09: Water Resources
	UT-LN-13: Pronghorn Winter Habitat

	UT-LN-14: Pronghorn Fawning Habitat
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-47: Fisheries
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-55: Water and Watershed Protection
	UT-LN-71: Paleontological
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

1315 FFO**UT-2021-10-1315**

UT, Fillmore Field Office, Bureau of Land Management, PD

T. 25 S., R. 10 W., SALT LAKE MER

Sec. 21, E1/2SW1/4;
 Sec. 27, W1/2SW1/4;
 Sec. 28, S1/2;
 Sec. 33, E1/2, E1/2NW1/4, E1/2SW1/4;
 Sec. 34, W1/2.

Millard County

1,280 Acres

EOI# UT00017591

Stipulations	Notices
UT-GEO-S-07: CSU – Soil Severe Erosion	UT-GEO-LN-02: Monitoring
UT-S-131: CSU – Critical Watershed (Perennial Streams and Springs)	UT-GEO-LN-03: Paleontological and Cultural Resources
	UT-GEO-LN-04: Geotechnical Analysis
	UT-GEO-LN-05: Fossils
	UT-GEO-LN-06: Migratory Birds
	UT-GEO-LN-07: Water
	UT-GEO-LN-08: Mining Claims
	UT-GEO-LN-09: Water Resources
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds

	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	UT-LN-64: National Historic Trails or Historic Properties
	UT-LN-71: Paleontological
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

1354 CCFO/FFO**UT-2021-10-1354**

UT, Cedar City Field Office, Bureau of Land Management, PD

T. 26 S., R. 10 W., SALT LAKE MER

Sec. 2 LOTS 1 thru 4;
 Sec. 2 S1/2NE1/4, S1/2NW1/4;
 Sec. 3 ALL;
 Sec. 4 LOTS 1 thru 4;
 Sec. 4 S1/2NE1/4, S1/2NW1/4, W1/2SW1/4, SE1/4;
 Sec. 5 LOTS 1;
 Sec. 5 SE1/4NE1/4, NE1/4SE1/4;
 Sec. 9 W1/2NE1/4, E1/2NW1/4, SE1/4;
 Sec. 10 N1/2, SW1/4, NW1/4SE1/4, SE1/4SE1/4;
 Sec. 11 ALL;
 Sec. 16 N1/2NE1/4, SW1/4NE1/4, W1/2, SE1/4.

Millard County (1509.72 ac)

Beaver County (2,249.78 ac)

3,759.5 Acres

EOI# UT00017596

Stipulations	Notices
UT-GEO-S-01: NSO – National Register of Historic Places, Cultural Resources (Sites, Structures, Objects, and Traditional Use Areas)	UT-GEO-LN-02: Monitoring
UT-GEO-S-02: NSO – Traditional Cultural Properties	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-GEO-S-03: NSO – Riparian Habitat	UT-GEO-LN-04: Geotechnical Analysis
UT-GEO-S-04: CSU – Riparian Habitat Buffer	UT-GEO-LN-05: Fossils
UT-GEO-S-07: CSU – Soil Severe Erosion	UT-GEO-LN-06: Migratory Birds
UT-GEO-S-08: NSO – Waterbodies, Wetlands, and/or 100-Year Floodplains	UT-GEO-LN-07: Water
UT-S-131: CSU – Critical Watershed (Perennial Streams and Springs)	UT-GEO-LN-08: Mining Claims
UT-S-280: TL – Bald Eagle Winter Habitat	UT-GEO-LN-09: Water Resources
	UT-LN-13: Pronghorn Winter Habitat

	UT-LN-14: Pronghorn Fawning Habitat
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-47: Fisheries
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-55: Water and Watershed Protection
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	UT-LN-64: National Historic Trails or Historic Properties
	UT-LN-71: Paleontological
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

7323 CCFO/FFO**UT-2021-10-7323**

UT, Cedar City Field Office, Bureau of Land Management, PD

T. 26 S., R. 17 W., SALT LAKE MER

Sec. 1, ALL;
 Sec. 3, ALL;
 Sec. 10, ALL;
 Sec. 11, ALL;
 Sec. 12, ALL;
 Sec. 13, ALL;
 Sec. 14, N1/2, N1/2SW1/4, N1/2SE1/4;
 Sec. 15, NE1/4, E1/2NW1/4, NE1/4SW1/4, N1/2SE1/4.

Beaver County (3,857.95 ac)

Millard County (1,223.57 ac)

5,081.52 Acres

EOI# UT00017587

Stipulations	Notices
UT-GEO-S-01: NSO – National Register of Historic Places, Cultural Resources (Sites, Structures, Objects, and Traditional Use Areas)	UT-GEO-LN-02: Monitoring
UT-GEO-S-02: NSO – Traditional Cultural Properties	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-GEO-S-03: NSO – Riparian Habitat	UT-GEO-LN-04: Geotechnical Analysis
UT-GEO-S-04: CSU – Riparian Habitat Buffer	UT-GEO-LN-05: Fossils

UT-GEO-S-07: CSU – Soil Severe Erosion	UT-GEO-LN-06: Migratory Birds
UT-GEO-S-08: NSO – Waterbodies, Wetlands, and/or 100-Year Floodplains	UT-GEO-LN-07: Water
UT-S-131: CSU – Critical Watershed (Perennial Streams and Springs)	UT-GEO-LN-08: Mining Claims
UT-S-280: TL – Bald Eagle Winter Habitat	UT-GEO-LN-09: Water Resources
	UT-LN-13: Pronghorn Winter Habitat
	UT-LN-14: Pronghorn Fawning Habitat
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-47: Fisheries
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-55: Water and Watershed Protection
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	UT-LN-64: National Historic Trails or Historic Properties
	UT-LN-71: Paleontological
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

7327 CCFO**UT-2021-10-7327**

UT, Cedar City Field Office, Bureau of Land Management, PD

T. 26 S., R. 17 W., SALT LAKE MER

Sec. 14, S1/2SW1/4, S1/2SE1/4;
 Sec. 15, SE1/4SW1/4, S1/2SE1/4;
 Sec. 22, E1/2;
 Sec. 23, ALL;
 Sec. 24, ALL;
 Sec. 25, ALL;
 Sec. 26, ALL;
 Sec. 27, E1/2;
 Sec. 34, E1/2;
 Sec. 35, ALL.

Beaver County

4,440 Acres

EOI# UT00017588

Stipulations	Notices
UT-GEO-S-01: NSO – National Register of Historic Places, Cultural Resources (Sites, Structures, Objects, and Traditional Use Areas)	UT-GEO-LN-02: Monitoring
UT-GEO-S-02: NSO – Traditional Cultural Properties	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-GEO-S-03: NSO – Riparian Habitat	UT-GEO-LN-04: Geotechnical Analysis
UT-GEO-S-04: CSU – Riparian Habitat Buffer	UT-GEO-LN-05: Fossils
UT-GEO-S-08: NSO – Waterbodies, Wetlands, and/or 100-Year Floodplains	UT-GEO-LN-06: Migratory Birds
UT-S-280: TL – Bald Eagle Winter Habitat	UT-GEO-LN-07: Water
	UT-GEO-LN-08: Mining Claims
	UT-GEO-LN-09: Water Resources
	UT-LN-13: Pronghorn Winter Habitat
	UT-LN-14: Pronghorn Fawning Habitat
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-47: Fisheries
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-55: Water and Watershed Protection
	UT-LN-71: Paleontological
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

1303 CCFO

UT-2021-10-1303 UT, Cedar City Field Office, Bureau of Land Management, PD <u>T. 27 S., R. 17 W., SALT LAKE MER</u> Sec. 1, ALL; Sec. 3, LOTS 1, 2; Sec. 3, S1/2NE1/4, SE1/4; Sec. 10, E1/2; Sec. 11, ALL; Sec. 12, ALL. Beaver County 2,560.18 Acres EOI# UT00017589	
Stipulations	Notices

UT-GEO-S-01: NSO – National Register of Historic Places, Cultural Resource (Sites, Structures, Objects, and Traditional Use Areas)	UT-GEO-LN-02: Monitoring
UT-GEO-S-02: NSO – Traditional Cultural Properties	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-GEO-S-03: NSO – Riparian Habitat	UT-GEO-LN-04: Geotechnical Analysis
UT-GEO-S-04: CSU – Riparian Habitat Buffer	UT-GEO-LN-05: Fossils
UT-GEO-S-08: NSO – Waterbodies, Wetlands, and/or 100-Year Floodplains	UT-GEO-LN-06: Migratory Birds
UT-S-280: TL – Bald Eagle Winter Habitat	UT-GEO-LN-07: Water
	UT-GEO-LN-08: Mining Claims
	UT-GEO-LN-09: Water Resources
	UT-LN-13: Pronghorn Winter Habitat
	UT-LN-14: Pronghorn Fawning Habitat
	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-47: Fisheries
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-54: Floodplains
	UT-LN-55: Water and Watershed Protection
	UT-LN-71: Paleontological
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

1309 CCFO

UT-2021-10-1309 UT, Cedar City Field Office, Bureau of Land Management, PD <u>T. 27 S., R. 17 W., SALT LAKE MER</u> Sec. 13, ALL; Sec. 14, ALL; Sec. 15, E1/2; Sec. 22, E1/2; Sec. 23, ALL; Sec. 24, ALL. Beaver County 3,200 Acres EOI# UT00017590	
Stipulations	Notices

UT-GEO-S-01: NSO – National Register of Historic Places, Cultural Resources (Sites, Structures, Objects, and Traditional Use Areas)	UT-GEO-LN-02: Monitoring
UT-GEO-S-02: NSO – Traditional Cultural Properties	UT-GEO-LN-03: Paleontological and Cultural Resources
UT-GEO-S-03: NSO – Riparian Habitat	UT-GEO-LN-04: Geotechnical Analysis
UT-GEO-S-04: CSU – Riparian Habitat Buffer	UT-GEO-LN-05: Fossils
UT-GEO-S-08: NSO – Waterbodies, Wetlands, and/or 100-Year Floodplains	UT-GEO-LN-06: Migratory Birds
UT-S-280: TL – Bald Eagle Winter Habitat	UT-GEO-LN-07: Water
	UT-GEO-LN-08: Mining Claims
	UT-GEO-LN-09: Water Resources
	UT-LN-13: Pronghorn Winter Habitat
	UT-LN-14: Pronghorn Fawning Habitat
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	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-147: Kit Fox Habitat
	UT-LN-156: Pollinators and Pollinator Habitat

Appendix B – Stipulations and Notices**Stipulation Summary Table**

	STANDARD STIPULATIONS (FROM H-3120 – COMPETITIVE LEASING HANDBOOK) *
HQ-CR-1	<p align="center">CULTURAL RESOURCE PROTECTION</p> <p>This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.</p>
HQ-TES-1	<p align="center">THREATENED AND ENDANGERED SPECIES ACT</p> <p>The lease area may now or hereafter contain plants, animals or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that would contribute to a need to list such species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. 1531 et seq. including completion of any required procedure for conference or consultation.</p>

*These stipulations are attached to all leases issued.

NUMBER	STIPULATIONS
UT-GEO-S-01	<p align="center">NO SURFACE OCCUPANCY – NATIONAL REGISTER OF HISTORIC PLACES, CULTURAL RESOURCES (SITES, STRUCTURES, OBJECTS, AND TRADITIONAL USE AREAS)</p> <p>In accordance with the No Surface Occupancy Lease Stipulations in Section 2.3.2 of the December 2008 Bureau of Land Management Record of Decision for the Geothermal Leasing Environmental Impact Statement and the suggested mitigating measures, No Surface Occupancy within the boundary of properties designated or eligible for the National Register of Historic Places, including National Landmarks and National Register Districts and Sites, and additional lands outside the designated boundaries to the extent necessary to protect values where the setting and integrity is critical to their designation or eligibility.</p>

NUMBER	STIPULATIONS
	<p>Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource and/or the resource the resource is no longer National Register quality. An exception may also be granted if the proponent, BLM, and other affected interests negotiate mitigation that would satisfactorily offset the anticipated negative impacts. An exception may be granted for actions designed to enhance the long-term utility or availability of the cultural resources.</p> <p>Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction.</p> <p>Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource, or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.</p>
UT-GEO-S-02	<p style="text-align: center;">NO SURFACE OCCUPANCY – TRADITIONAL CULTURAL PROPERTIES</p> <p>In accordance with the No Surface Occupancy Lease Stipulations in Section 2.3.2 of the December 2008 Bureau of Land Management Record of Decision for the Geothermal Leasing Environmental Impact Statement and the suggested mitigating measures, No Surface Occupancy within areas with important cultural and archaeological resources, such as traditional cultural properties and Native American sacred sites, as identified through consultation.</p> <p>Exception: None.</p> <p>Modification: The Authorized Officer may modify the size and shape of the restricted area if through consultation and cultural analysis indicates the traditional cultural properties resource differs or changes.</p> <p>Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource, or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.</p>
UT-GEO-S-03	<p style="text-align: center;">NO SURFACE OCCUPANCY – RIPARIAN HABITAT</p> <p>No Surface Occupancy (NSO) on and within riparian-wetland vegetated areas to protect the values and functions of these areas. To protect the values and functions of riparian and wetland areas based on the nature, extent, and value of the area potentially affected.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource. An exception may also be granted if the proponent, BLM, and other affected interests negotiate mitigation that would satisfactorily offset the anticipated negative impacts. An exception may be granted for actions designed to enhance the long-term utility or availability of the riparian habitat.</p> <p>Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction.</p>

NUMBER	STIPULATIONS
	<p>Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource, or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.</p>
<p>UT-GEO-S-04</p>	<p style="text-align: center;">CONTROLLED SURFACE USE – RIPARIAN HABITAT BUFFER</p> <p>Controlled Surface Use (CSU) will be applied within 500 feet of riparian-wetland vegetation to protect the values and functions of these areas. An engineering plan or a study may be required by the operator that identifies the extent of the resource or how the resource will be managed or protected. To protect the values and functions of riparian and wetland areas based on the nature, extent, and value of the area potentially affected.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource. An exception may also be granted if the proponent, BLM, and other affected interests negotiate mitigation that would satisfactorily offset the anticipated negative impacts. An exception may be granted for actions designed to enhance the long-term utility or availability of the riparian habitat.</p> <p>Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction.</p> <p>Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource, or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.</p>
<p>UT-GEO-S-07</p>	<p style="text-align: center;">CONTROLLED SURFACE USE – SOIL SEVERE EROSION</p> <p>Controlled Surface Use (CSU) on lands with a severe soil wind or water erosion hazard rating (as designed by NRCS soil survey data when available). Prior to surface disturbance on soils with a severe erosion hazard rating, a site-specific construction, stabilization, and reclamation plan (Plan) must be submitted to the BLM by the applicant as a component of the Geothermal Drilling/Application for Permit to Drill – Plan of Operations. The operator may not initiate surface disturbing activities unless the Authorized Officer has approved the Plan or approved it with conditions.</p> <p>The plan must demonstrate to the Authorized Officer’s satisfaction how the operator will meet the following performance standards:</p> <ul style="list-style-type: none"> • Soil stability is maintained preventing slope failure and wind or water erosion. • The site will be stable with no evidence of accelerated erosion features. • The rate of soil erosion will be controlled to maintain or improve soil quality and sustainability. The disturbed soils shall have characteristics that approximate the reference site with regard to quantitative and qualitative soil erosion indicators described in H-7100-1 Soil Inventory, Monitoring, and Management Handbook. • Sufficient topsoil is maintained for ensuring successful final reclamation. Interim reclamation will be completed, by re-spreading the topsoil over the areas being reclaimed.

NUMBER	STIPULATIONS
	<ul style="list-style-type: none"> • The original landform and site productivity will be partially restored during interim reclamation and fully restored as a result of final reclamation. <p>To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, to avoid areas subject to slope failure, mass wasting, piping, or having excessive reclamation problems, and ensure successful interim and final reclamation.</p> <p>Exception: The Authorized Officer may grant an exception if a staff review determines that the proposed action is of a scale (pipeline, vs. road, vs. well pad) or sited in a location, or a soil survey determines that the soil properties do not meet the severe erosion hazard criteria so that the proposed action would not result in a failure to meet the performance standards above.</p> <p>Modification: The Authorized Officer may modify the size and shape of the restricted area subject to the stipulation based upon a NRCS soil survey or BLM evaluation. The stipulation and performance standards identified above may also be modified based on negative or positive monitoring results from similar proposed actions on similar sites or increased national or state performance standards. The authorized officer may modify the size and shape of the restricted area subject to the stipulation based upon a NRCS soil survey or BLM evaluation. The stipulation and performance standards identified above may also be modified based on negative or positive monitoring results from similar proposed actions on similar sites or increased national or state performance standards.</p> <p>Waiver: The restriction may be waived if it is determined that the described lands do not include soils with severe erosion hazard. This determination shall be based upon NRCS mapping and BLM evaluation of the area.</p>
UT-GEO-S-08	<p>NO SURFACE OCCUPANCY – WATER BODIES, WETLANDS, AND/OR 100-YEAR FLOODPLAINS</p> <p>No Surface Occupancy (NSO) on water bodies, wetlands and/or 100-year floodplains.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource. An exception may also be granted if the proponent, BLM, and other affected interests negotiate mitigation that would satisfactorily offset the anticipated negative impacts. An exception may be granted for actions designed to enhance the long-term utility or availability of the water bodies, wetlands, and/or 100-year floodplains resource.</p> <p>Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction.</p> <p>Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource, or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.</p>

NUMBER	STIPULATIONS
UT-S-58	<p align="center">NO SURFACE OCCUPANCY – SUNSTONE KNOLL ROCKHOUNDING AREA</p> <p>All of the land in the designated area is included in the Sunstone Knoll Rockhounding Area due to the site being a collection area for golden labradorite. Therefore, no occupancy or disturbance of the surface of the land described in this area is authorized. The lease holder however, may exploit the geothermal resources in the area by directional drilling from sites outside this area.</p> <p>Exceptions: None Modification: None Waiver: None</p>
UT-S-131	<p align="center">CONTROLLED SURFACE USE – CRITICAL WATERSHED (PERENNIAL STREAMS AND SPRINGS)</p> <p>In order to protect Critical Watershed, no occupancy or other subsurface disturbance will be allowed within 500 feet of any perennial streams and springs. This stipulation does not apply to maintenance and operation of producing wells.</p> <p>Exception: Exceptions to this stipulation in any year may be specifically writing by the authorized officer of the BLM if it can be shown that the activity would not impact the watershed.</p> <p>Modification: None Waiver: None</p>
UT-S-239	<p align="center">TIMING LIMITATION – SEASONAL MULE DEER HABITAT</p> <p>In order to protect important seasonal mule deer habitat, exploration, drilling, and other development activity will be allowed only during the period from May 1 through December 30. This limitation does not apply to maintenance and operation of producing wells.</p> <p>Exception: Exceptions to this limitation in any year may be specifically approved in writing by the authorized officer of the BLM.</p> <p>Modification: None Waiver: None</p>
UT-S-280	<p align="center">TIMING LIMITATION – BALD EAGLE WINTER HABITAT</p> <p>In order to protect important seasonal bald eagle winter habitat, exploration, drilling, and other development activity will be allowed during the period from May 1 through October 31. This imitation does not apply to maintenance and operation of producing wells.</p>

Notice Summary Table

NUMBER	NOTICES
UT-GEO-LN-02	<p style="text-align: center;">MONITORING</p> <p>Prior to geothermal exploration and development, a complete subsurface geotechnical investigation will be conducted to analyze the soil and geologic conditions. The investigation will evaluate and identify potential geologic hazards and would provide remedial grading recommendations, foundation and slab design criteria, and soil parameters for the design of geothermal power infrastructure.</p> <p>The operator will collect available information describing the environmental and socio-cultural conditions in the vicinity of the proposed project and will provide the information to the agency.</p> <p>A monitoring program will be developed by the operator to ensure that environmental conditions are monitored during the exploration and well drilling, testing, construction, and utilization and reclamation phases. The monitoring program requirements, including adaptive management strategies, will be established at the project level to ensure that potential adverse impacts of geothermal development are mitigated. The monitoring program will identify the monitoring requirements for each major environmental resource present at the site, establish metrics against which monitoring observations can be measured, identify potential mitigation measures, and establish protocols for incorporating monitoring observations and additional mitigation measures into ongoing activities. The operator will provide results of the monitoring program to the agency in an annual report.</p> <p>The operator will comply with the Secretary of Agriculture's rules and regulations for all use and occupancy of the NFS lands prior to approval of an exploration plan by the Secretary of Interior and for uses of all existing improvements, such as forest development roads, within and outside the area permitted by the Secretary of Interior; and use and occupancy of the NFS lands not authorized by an exploration plan approved by the Secretary of Interior.</p>
UT-GEO-LN-03	<p style="text-align: center;">PALEONTOLOGICAL AND CULTURAL RESOURCES</p> <p>Before any specific permits are issued under leases, treatment of cultural resources will follow the procedures established by the Advisory Council on Historic Preservation for compliance with Section 106 of the National Historic Preservation Act. A pedestrian inventory will be undertaken of all portions that have not been previously surveyed or are identified by BLM as requiring inventory to identify properties that are eligible for the National Register of Historic Places (NRHP). Those sites not already evaluated for NRHP eligibility will be evaluated based on surface remains, subsurface testing, archival, and/or ethnographic sources. Subsurface testing will be kept to a minimum whenever possible if sufficient information is available to evaluate the site or if avoidance is an expected mitigation outcome. Recommendations regarding the eligibility of sites will be submitted to the BLM, and a treatment plan will be prepared to detail methods for avoidance of impacts or mitigation of effects. The BLM will make determinations of eligibility and effect and consult with SHPO as necessary based on each proposed lease application and project plans. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that</p>

NUMBER	NOTICES
	<p>cannot be successfully avoided, minimized or mitigated. Avoidance of impacts through project design will be given priority over data recovery as the preferred mitigation measure. Avoidance measures include moving project elements away from site locations or to areas of previous impacts, restricting travel to existing roads, and maintaining barriers and signs in areas of cultural sensitivity. Any data recovery will be preceded by approval of a detailed research design, Native American Consultation, and other requirements for BLM issuance of a permit under the Archaeological Resources Protection Act (BLM 2007a).</p> <p>If cultural resources are present at the site, or if areas with a high potential to contain cultural material have been identified, a cultural resources management plan (CRMP) will be developed. This plan will address mitigation activities to be taken for cultural resources found at the site. Avoidance of the area is always the preferred mitigation option. Other mitigation options include archaeological survey and excavation (as warranted) and monitoring. If an area exhibits a high potential, but no artifacts were observed during an archaeological survey, monitoring by a qualified archaeologist could be required during all excavation and earthmoving in the high- potential area. A report will be prepared documenting these activities. The CRMP also will (1) establish a monitoring program, (2) identify measures to prevent potential looting/vandalism or erosion impacts, and (3) address the education of workers and the public to make them aware of the consequences of unauthorized collection of artifacts and destruction of property on public land (BLM 2005).</p> <p>Operators will determine whether paleontological resources exist in a project area on the basis of the sedimentary context of the area, a records search for past paleontological finds in the area, and/or, depending on the extent of existing information, a paleontological survey.</p> <p>If paleontological resources are present at the site, or if areas with a high potential to contain paleontological material have been identified, a paleontological resources management plan will be developed. This plan will include a mitigation plan for avoidance, removal of fossils, or monitoring. If an area exhibits a high potential but no fossils were observed during survey, monitoring by a qualified paleontologist may be required during excavation and earthmoving in the sensitive area. The operator will submit a report to the agency documenting these activities. The paleontological resources management plan also will (1) establish a monitoring program, (2) identify measures to prevent potential looting/vandalism or erosion impacts, and (3) address the education of workers and the public to make them aware of the consequences of unauthorized collection of fossils on public land.</p>
UT-GEO-LN-04	<p style="text-align: center;">GEOTECHNICAL ANALYSIS</p> <p>The operator will perform a detailed geotechnical analysis prior to the construction of any structures; so they will be sited to avoid any hazards from subsidence or liquefaction (i.e., the changing of a saturated soil from a relatively stable solid state to a liquid during earthquakes or nearby blasting).</p>
UT-GEO-LN-05	<p style="text-align: center;">FOSSILS</p> <p>This area has low to moderate potential for vertebrate paleontological resources, unless noted to have higher potential in a separate stipulation. This area may contain vertebrate paleontological resources. Inventory and/or on-site monitoring</p>

NUMBER	NOTICES
	<p>during disturbance or spot checking may be required of the operator. In the event that previously undiscovered paleontological resources are discovered in the performance of any surface disturbing activities, the item(s) or condition(s) will be left intact and immediately brought to the attention of the authorized officer of the BLM. Operations within 250 feet of any such discovery will not be resumed until written authorization to proceed is issued by the Authorized Officer. The lessee will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operations.</p>
UT-GEO-LN-06	<p style="text-align: center;">MIGRATORY BIRDS</p> <p>The Operator is responsible for compliance with provisions of the Migratory Bird Treaty Act by implementing measures to prevent take of migratory birds. Operators should be aware that any ground clearing or other disturbance (such as creating cross-country access to sites, drilling, and/or construction) during the migratory bird (including raptors) nesting season (March 1 -July 31) risks a violation of the Migratory Bird Treaty Act. Disturbance to nesting migratory birds should be avoided by conducting surface disturbing activities outside the migratory bird nesting season. If surface disturbing activities must be implemented during the nesting season, a preconstruction survey for nesting migratory birds should be performed by a qualified wildlife biologist, during the breeding season (if work is not completed within a specified time frame, then additional surveys may be needed). If active nests are found, an appropriately-sized no surface disturbance buffer determined in coordination with the BLM biologist should be placed on the active nest until the nesting attempt has been completed. If no active nests are found, construction activities must occur within the survey validity time frame specified in the conditions of approval.</p>
UT-GEO-LN-07	<p style="text-align: center;">WATER</p> <p>The Operator is responsible for compliance with provisions of the Clean Water Act, Safe Drinking Water Act, and applicable State laws and regulations regarding protection of state water resources. Operators should contact Utah Division of Water Resources and Utah Division of Environmental Protection regarding necessary permits and compliance measures for any construction or other activities.</p>
UT-GEO-LN-08	<p style="text-align: center;">MINING CLAIMS</p> <p>This parcel may contain existing mining claims and/or mill sites located under the 1872 Mining Law. To the extent it does, the geothermal lessee must conduct its operations, so far as reasonably practicable, to avoid damage to any known deposit of any mineral for which any mining claim on this parcel is located, and should not endanger or unreasonably or materially interfere with the mining claimant's operations, including any existing surface or underground improvements, workings, or facilities which may have been made for the purpose of mining operations. The provisions of the Multiple Mineral Development Act (30 U.S.C. 521 et seq.) shall apply on the leased lands.</p>
UT-GEO-LN-09	<p style="text-align: center;">WATER RESOURCES</p> <p>In coordination with State regulatory agencies the operator will comply with all State and Federal surface and</p>

NUMBER	NOTICES
	<p>ground water rules and regulations for all phases of geothermal exploration, development, and reclamation. Operators will develop a storm water management plan for the site to ensure compliance with applicable regulations and prevent off- site migration of contaminated storm water or increased soil erosion. Operators will gain a clear understanding of the local hydrogeology. Areas of groundwater discharge and recharge and their potential relationships with surface water bodies will be identified. Operators will avoid creating hydrologic conduits between discrete aquifers during foundation excavation and other activities.</p> <p>Freshwater-bearing and other usable water aquifers will be protected from contamination by assuring all well casing (excluding the liner) is required to be cemented from the casing shoe to the surface.</p> <p>Periodic testing and monitoring via observation wells will be conducted in a manner to assure maximum protection of water resources from geothermal fluids or alterations in reservoir pressure.</p>
UT-LN-13	<p style="text-align: center;">PRONGHORN WINTER HABITAT</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing crucial pronghorn winter habitat. Surface use or otherwise disruptive activity may be restricted for up to 60 days during pronghorn fawning season, as determined by BLM, including exploration, drilling and other development activities. Modifications may be required in the Surface Use Plan of Operations including seasonal timing restrictions to protect the species and its habitat.</p>
UT-LN-14	<p style="text-align: center;">PRONGHORN FAWNING HABITAT</p> <p>The lessee/operator is given notice that this lease has been identified as containing crucial pronghorn fawning habitat. Surface use or otherwise disruptive activity may be restricted for up to 60 days during pronghorn fawning season, as determined by BLM within identified crucial/important pronghorn fawning habitat from disruptive activity. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
UT-LN-20	<p style="text-align: center;">ROCKY MOUNTAIN/DESERT BIGHORN SHEEP CRUCIAL LAMBING AND RUTTING HABITAT</p> <p>The Lessee/Operator is given notice that the lands in this parcel contains habitat for bighorn sheep. Modifications to the surface use plan may be required in order to protect habitat from surface disturbing activities. Surface use or otherwise disruptive activity may be restricted for up to 60 days during pronghorn fawning season, as determined by BLM. These modifications may include such measures as timing restrictions to avoid surface use during the crucial lambing and rutting seasons. Measure may also include avoidance of certain areas such as water sources and talus slopes.</p>
UT-LN-44	<p style="text-align: center;">RAPTORS</p> <p>Appropriate seasonal and spatial buffers shall be placed on all known raptor nests in accordance with Utah Field Office Guidelines for Raptor Protection from Human and Land use Disturbances (USFWS 2002) and Best Management Practices for Raptors and their Associated Habitats in Utah (BLM 2006). All construction related activities will not occur within</p>

NUMBER	NOTICES
	<p>these buffers if pre-construction monitoring indicates the nests are active, unless a site-specific evaluation for active nests is completed prior to construction and if a BLM wildlife biologist, in consultation with USFWS and UDWR, recommends that activities may be permitted within the buffer. The BLM will coordinate with the USFWS and UDWR and have a recommendation within 3-5 days of notification. Any construction activities authorized within a protective (spatial and seasonal) buffer for raptors will require an on-site monitor. Any indication that activities are adversely affecting the raptor and/or its' young the on-site monitor will suspend activities and contact the BLM Authorized Officer immediately. Construction may occur within the buffers of inactive nests. Construction activities may commence once monitoring of the active nest site determines that fledglings have left the nest and are no longer dependent on the nest site. Modifications to the Surface Use Plan of Operations may be required.</p>
UT-LN-45	<p style="text-align: center;">MIGRATORY BIRD</p> <p>The lessee/operator is given notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within priority habitats. Surveys should focus on identified priority bird species in Utah. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations.</p>
UT-LN-47	<p style="text-align: center;">FISHERIES</p> <p>The lessee/operator is given notice that this lease has been identified as containing fisheries habitat. No surface use or otherwise disruptive activity allowed within 400 feet of live water or the reservoirs located in the Beaver and Sevier River drainages, Parowan and Cedar Valley drainages, or Pinto Creek/Newcastle Reservoir drainage in order to prevent fisheries degradation.</p>
UT-LN-49	<p style="text-align: center;">UTAH SENSITIVE SPECIES</p> <p>The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Endangered Species Act, and Migratory Bird Treaty Act.</p>
UT-LN-51	<p style="text-align: center;">SPECIAL STATUS PLANTS: NOT FEDERALLY LISTED</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing special status plants, not federally listed, and their habitats. Modifications to the Surface Use Plan of Operations may be required in order to protect the special status plants and/or habitat from surface disturbing activities in accordance the Endangered Species Act.</p>

NUMBER	NOTICES
UT-LN-52	<p style="text-align: center;">NOXIOUS WEEDS</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing or is near areas containing noxious weeds. Best management practices to prevent or control noxious weeds may be required for operations on the lease.</p>
UT-LN-53	<p style="text-align: center;">RIPARIAN AREAS</p> <p>The lessee/operator is given notice that this lease has been identified as containing riparian areas. No surface use or otherwise disruptive activity allowed within 100 meters of riparian areas unless it can be shown that (1) there is no practicable alternative; (2) that all long-term impacts are fully mitigated; or (3) that the construction is an enhancement to the riparian areas. Modifications to the Surface Use Plan of Operations may be required.</p>
UT-LN-54	<p style="text-align: center;">FLOODPLAINS</p> <p>The lessee/operator is given notice that lands in this lease could contain a floodplain and may require surveys to avoid adverse impact to the floodplain (520 DM 1). Developments should be located outside of the floodplain. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management.</p>
UT-LN-55	<p style="text-align: center;">WATER AND WATERSHED PROTECTION</p> <p>The lessee/operator is given notice that this lease may need modifications to the Surface Use Plan of Operations in order to prevent water pollution and protect municipal and non-municipal watershed areas. No surface use or otherwise disruptive activity allowed within 500 feet of live water or the reservoirs located in the Beaver, Milford and Sevier River drainages, Parowan and Cedar Valley drainages, or Pinto Creek/Newcastle Reservoir drainage in order to prevent water quality degradation.</p>
UT-LN-59	<p style="text-align: center;">ERODIBLE SOILS AND STEEP SLOPES</p> <p>The lessee/operator is given notice that the area is a municipal or non-municipal watershed and has steep slopes and erosive soils. New roads will be constructed to avoid soils that are highly erosive and / or in critical or severe erosion conditions. New roads will be constructed with water bars. Riprap may be required. Road grades in excess of 8 percent will normally not be allowed. In special circumstances, where a road grade of more than 10 percent is allowed, its maximum length will be 1,000 feet. Access grading along with exploration, drilling, construction, or other activities will be prohibited during wet or muddy conditions (usually during spring runoff and summer monsoon rains). Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations. Modifications to the Surface Use Plan of Operations may be required.</p>

NUMBER	NOTICES
UT-LN-60	<p style="text-align: center;">STEEP SLOPES</p> <p>The lessee/operator is given notice that this lease has been identified as containing steep slopes. No surface use or otherwise disruptive activity allowed on slopes in excess of 30 percent without written permission from the Authorized Officer. Modifications to the Surface Use Plan of Operations may be required.</p>
UT-LN-64	<p style="text-align: center;">NATIONAL HISTORIC TRAILS OR HISTORIC PROPERTIES</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing or is near a historic trail(s) or historic properties. After proper consultation, best management practices to prevent impacts to such resources may be required for operations on the lease.</p>
UT-LN-71	<p style="text-align: center;">PALEONTOLOGICAL</p> <p>The lessee/operator is given notice that this lease has been identified as containing paleontological resources. Surveys will be required whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within geological strata that may contain important paleontological resources. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Exploration, drilling and other development activities may be restricted based on the result of the field survey; the authorized officer will determine appropriate mitigations. Modifications to the Surface Use Plan of Operations may be required.</p>
UT-LN-96	<p style="text-align: center;">AIR QUALITY MITIGATION MEASURES</p> <p>The lessee is given notice that the Bureau of Land Management (BLM) in coordination with the U.S. Environmental Protection Agency and the Utah Department of Air Quality, among others, has developed the following air quality mitigation measures that may be applied to any development proposed on this lease. Integration of and adherence to these measures may help minimize adverse local or regional air quality impacts from geothermal development (including but not limited to construction, drilling, and production) on regional ozone formation.</p> <ul style="list-style-type: none"> • All internal combustion equipment would be kept in good working order. • Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer. • Open burning of garbage or refuse would not occur at well sites or other facilities. • Drill rigs would be equipped with Tier II or better diesel engines. • Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater. • Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers. • During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible. • Well site telemetry would be utilized as feasible for production operations.

NUMBER	NOTICES
	<ul style="list-style-type: none"> Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr for engines <300HP; and 1g NOx/bhp-hr for engines >300HP. <p>Additional site-specific measures may also be employed to avoid or minimize effects to local or regional air quality. These additional measures will be developed and implemented in coordination with the U.S. Environmental Protection Agency, the Utah Department of Air Quality, and other agencies with expertise or jurisdiction as appropriate based on the size of the project and magnitude of emissions.</p>
UT-LN-99	<p style="text-align: center;">REGIONAL OZONE FORMATION CONTROLS</p> <p>To mitigate any potential impact geothermal development emissions may have on regional ozone formation, the following Best Management Practices (BMPs) would be required for any development projects:</p> <ul style="list-style-type: none"> Tier II or better drilling rig engines Stationary internal combustion engine standard of 2g NOx/bhp-hr for engines <300HP and 1g NOx/bhp-hr for engines >300HP Low bleed or no bleed pneumatic pump valves Dehydrator VOC emission controls to +95% efficiency Tank VOC emission controls to +95% efficiency
UT-LN-101	<p style="text-align: center;">AIR QUALITY</p> <p>All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 grams of NOx per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. AND All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NOx per horsepower-hour. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
UT-LN-102	<p style="text-align: center;">AIR QUALITY ANALYSIS</p> <p>The lessee/operator is given notice that prior to project-specific approval, additional air quality analyses may be required to comply with the National Environmental Policy Act, Federal Land Policy Management Act, and/or other applicable laws and regulations. Analyses may include dispersion modeling and/or photochemical modeling for deposition and visibility impacts analysis, control equipment determinations, and/or emission inventory development. These analyses may result in the imposition of additional project-specific air quality control measures.</p>
UT-LN-107	<p style="text-align: center;">BALD EAGLE</p> <p>The Lessee/Operator is given notice that the lands in this parcel contains nesting/winter roost habitat for the bald eagle. The bald eagle was de-listed in 2007; however, it is still afforded protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 1940). Therefore, avoidance or use restrictions may be placed on portions of the lease.</p>

NUMBER	NOTICES
	<p>Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside the bald eagle breeding or roosting season. A <u>temporary</u> action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> action continues for more than one breeding or roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease will not lead to the need to consider listing the eagle as threatened or endangered. Integration of, and adherence to the following measures will facilitate review and analysis of any submitted permits under the authority of this lease.</p> <p>Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s), and be conducted according to protocol. 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season of January 1 to August 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 5. Temporary activities within 0.5 miles of winter roost areas, e.g., cottonwood galleries, will not occur during the winter roost season of November 1 to March 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 6. No permanent infrastructure will be placed within 1.0 mile of nest sites. 7. No permanent infrastructure will be placed within 0.5 miles of winter roost areas. 8. Remove big game carrion from within 100 feet of lease roadways occurring within bald eagle foraging range. 9. Avoid loss or disturbance to large cottonwood gallery riparian habitats. 10. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species. <p>Additional measures may also be employed to avoid or minimize effects to the species between the lease sale stage and lease development stage. These additional measures will be developed and implemented in coordination with the U.S. Fish and Wildlife Service.</p>

NUMBER	NOTICES
UT-LN-128	<p style="text-align: center;">FLOODPLAIN MANAGEMENT</p> <p>The lessee/operator is given notice that, in accordance with Executive Order 11988, to avoid adverse impact to floodplains 1) facilities should be located outside the 100-year floodplain, or 2) would be minimized or mitigated by modification of surface use plans within floodplains present within the lease.</p>
UT-LN-147	<p style="text-align: center;">KIT FOX HABITAT</p> <p>The lessee/operator is given notice that no surface disturbances would be allowed within 660 feet (200 meters) of an occupied natal kit fox den.</p>
UT-LN-156	<p style="text-align: center;">POLLINATORS AND POLLINATOR HABITAT</p> <p>In order to protect pollinators and pollinator habitat, in accordance with BLM policy outlined in Instruction Memorandum No. 2016-013, Managing for Pollinators on Public Lands, and Pollinator-Friendly Best Management Practices for Federal Lands (2015), the following avoidance, minimization, and mitigation measures would apply to this parcel:</p> <ol style="list-style-type: none"> 1. Give a preference for placing well pads in previously disturbed areas, dry areas that do not support forbs, or areas dominated by nonnative grasses. 2. Utilize existing well pads where feasible. 3. Avoid disturbance to native milkweed patches within Monarch migration routes to protect Monarch butterfly habitat. 4. Avoid disturbance of riparian and meadow sites, as well as small depressed areas that may function as water catchments and host nectar-producing species, to protect Monarch butterfly habitat and nectaring sites. 5. Minimize the use of pesticides that negatively impact pollinators. 6. During revegetation treatments: <ol style="list-style-type: none"> a. Use minimum till drills where feasible. b. Include pollinator-friendly site-appropriate native plant seeds or seedlings in seed mixes. c. Where possible, increase the cover and diversity of essential habitat components for native pollinators by: <ul style="list-style-type: none"> ▪ Using site-appropriate milkweed seeds or seedlings within Monarch migration routes through priority sage-grouse habitat. ▪ Using seed mixes with annual and short-lived perennial native forbs that will bloom the first year and provide forage for pollinators. ▪ Using seed mixes with a variety of native forb species to ensure different colored and shaped flowers to provide nectar and pollen throughout the growing season for a variety of pollinators. ▪ Seeding forbs in separate rows from grasses to avoid competition during establishment. ▪ Avoiding seeding non-native forbs and grasses that establish early and out compete slower-growing natives.

Appendix C – Figures/Maps

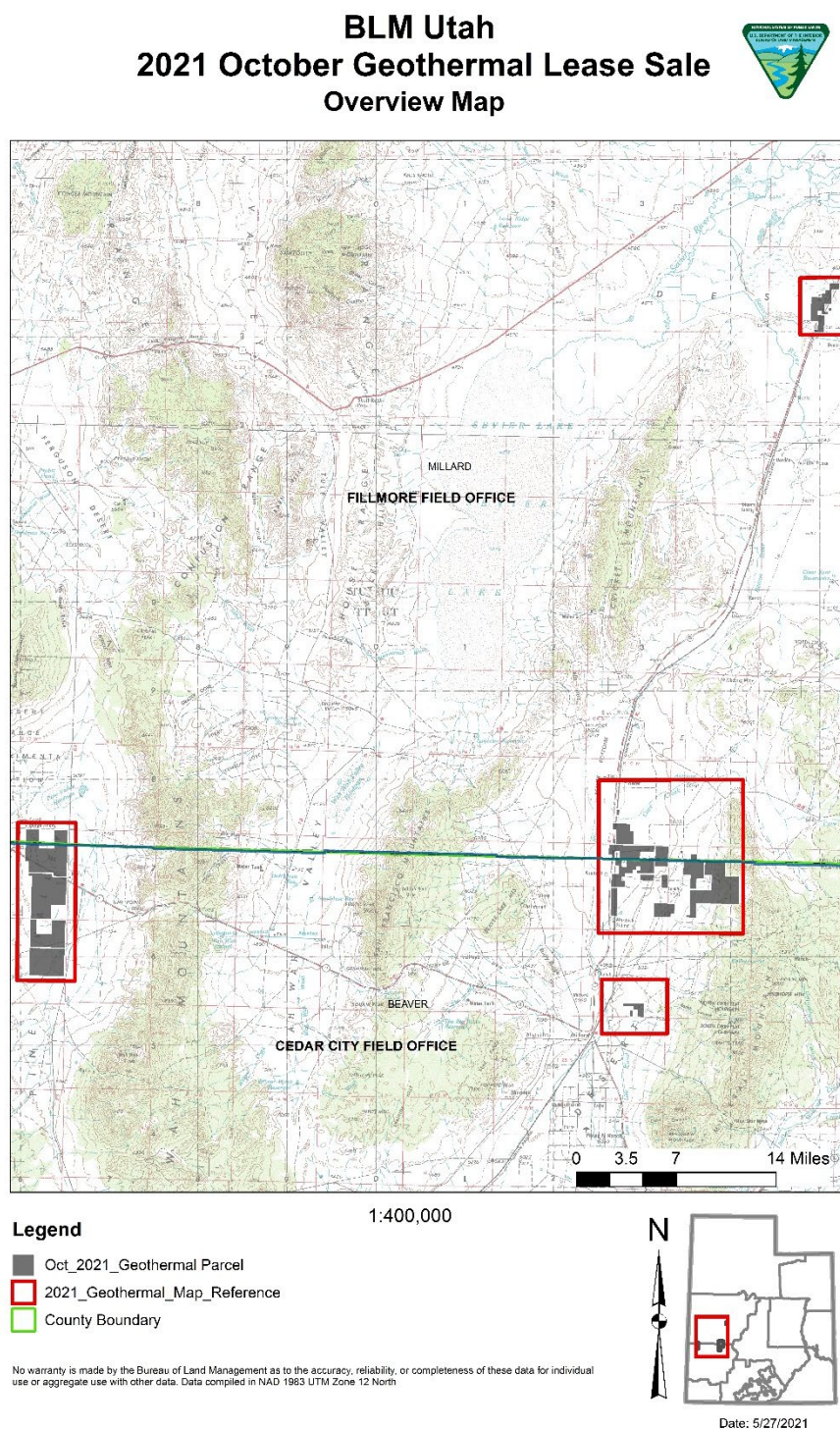


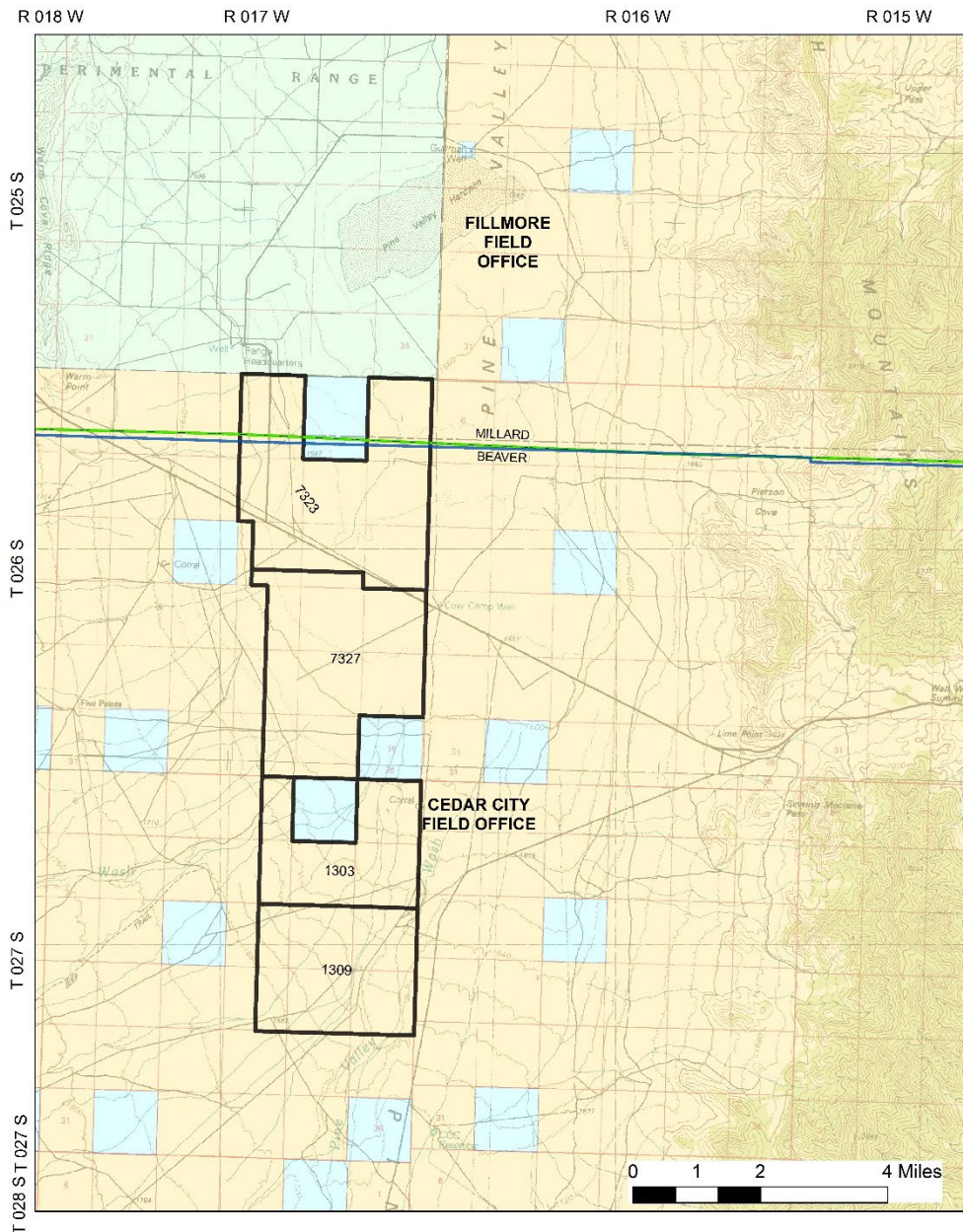
Figure 2. Overview Map of Geothermal parcel nominations.

June 2021

BLM Utah

2021 October Geothermal Lease Sale

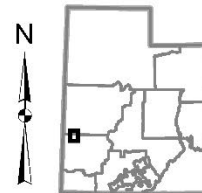
Fillmore & Cedar City Field Office Parcels



Legend

- Oct_2021_Geothermal Parcel
- Bureau of Land Management (BLM)
- State
- US Forest Service (USFS)

1:100,000



Date: 4/30/2021

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North

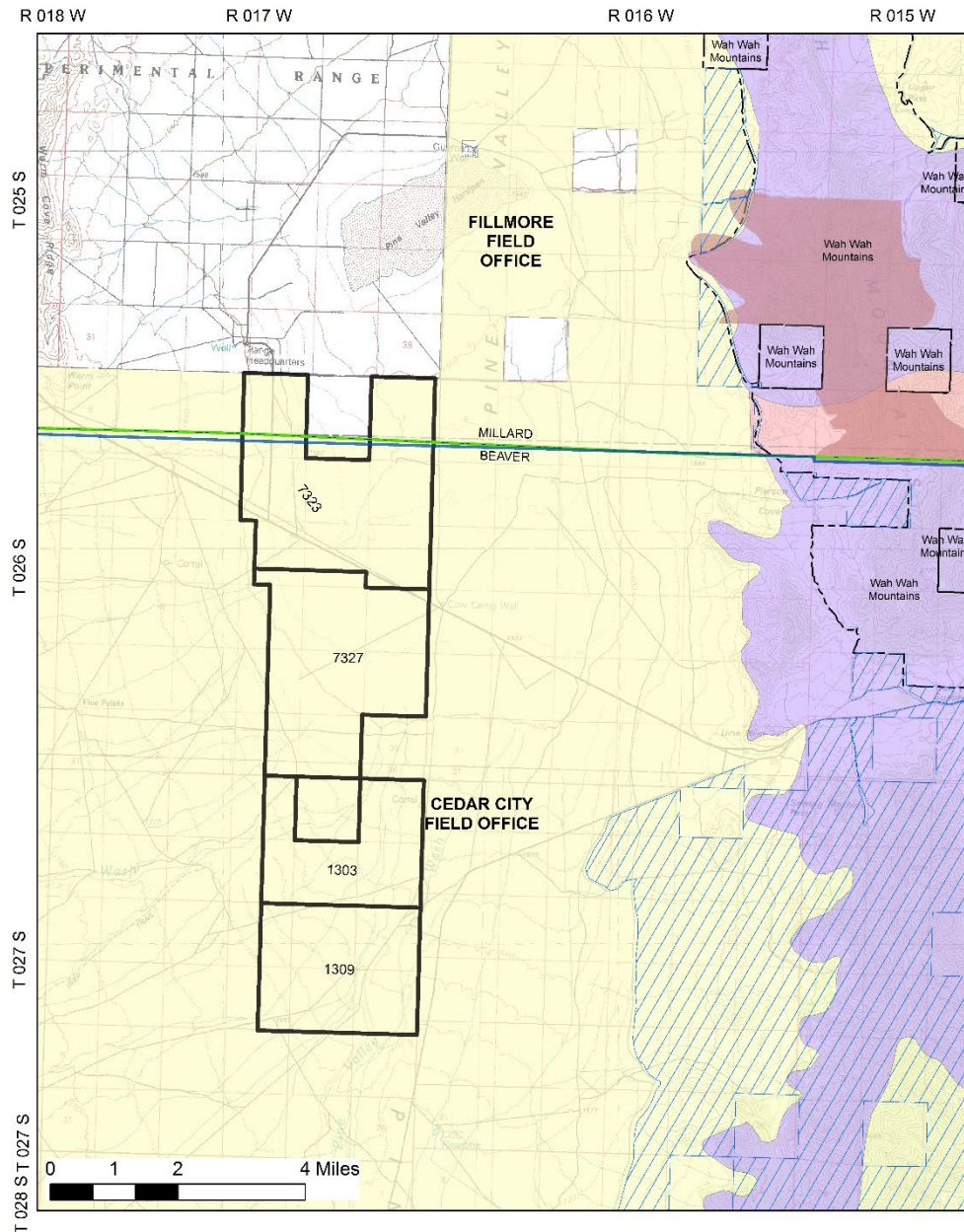
Figure 3. Parcels in Cedar City and Fillmore Field Offices with Land Status.

June 2021

BLM Utah

2021 October Geothermal Lease Sale

Fillmore & Cedar City Field Office Parcels

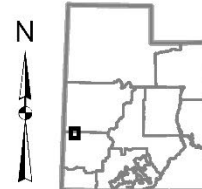


1:100,000

Legend

STATUS	Visual Resource Management Classes
Oct_2021_Geothermal Parcel	Class II
Wilderness Characteristics	Class III
Designated ACEC	Class IV
BLM Wilderness Study Area	

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North

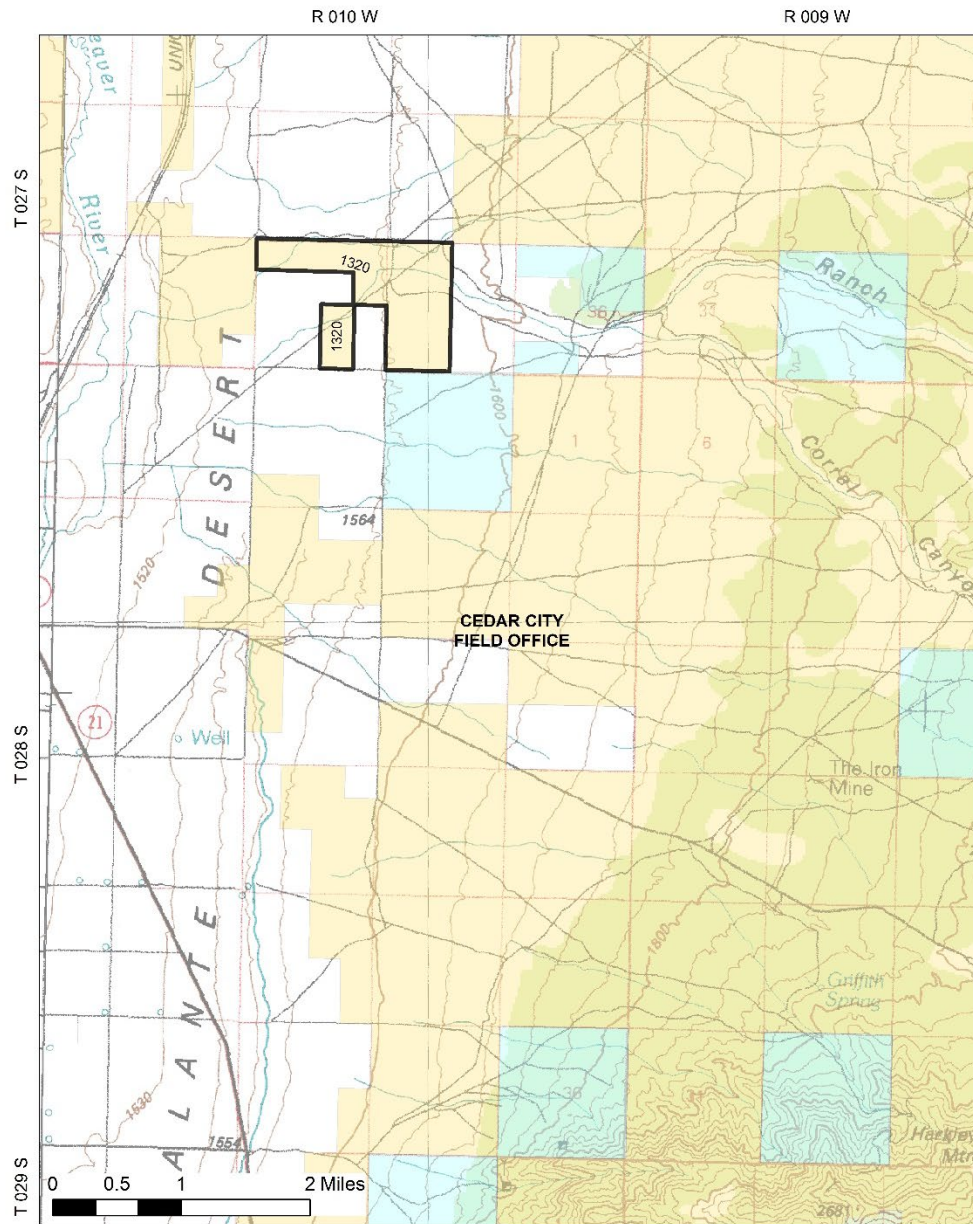


Date: 4/30/2021

Figure 4. Parcel in Cedar City and Fillmore Field Offices with Visual Resource management Class, ACEC, WSA, and LWC.

June 2021

BLM Utah 2021 October Geothermal Lease Sale Cedar City Field Office Parcels

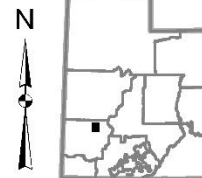


1:50,000

Legend

- Oct_2021_Geothermal Parcel
- Bureau of Land Management (BLM)
- Private
- State

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North

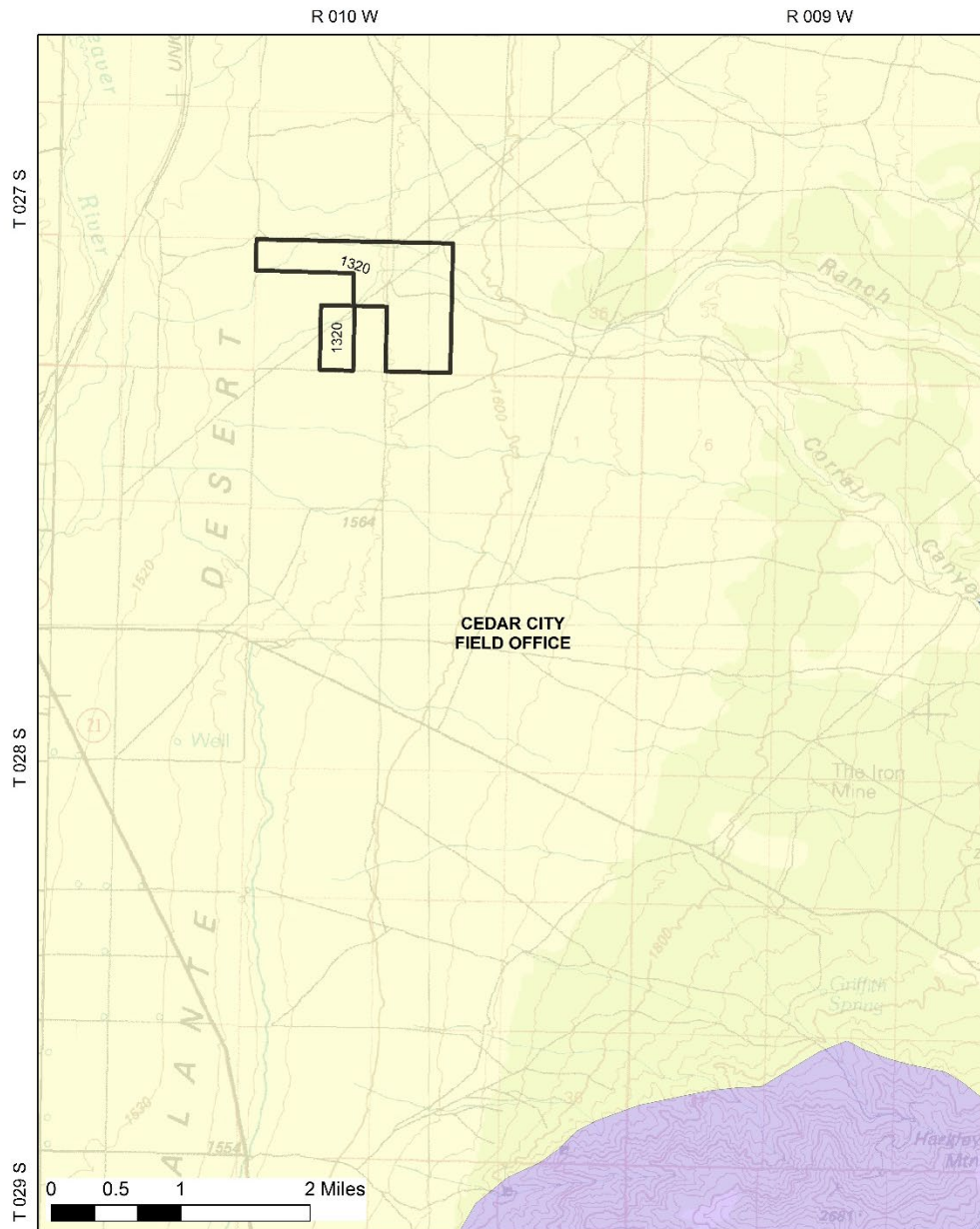


Date: 4/30/2021

Figure 5. Parcel in Cedar City Field Office with Land Status.

June 2021

**BLM Utah
2021 October Geothermal Lease Sale
Cedar City Field Office Parcels**

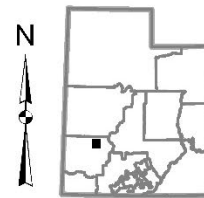


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Legend

Oct_2021_Geothermal Parcel	Visual Resource Management Classes
STATUS	
Wilderness Characteristics	Class III
	Class IV

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North

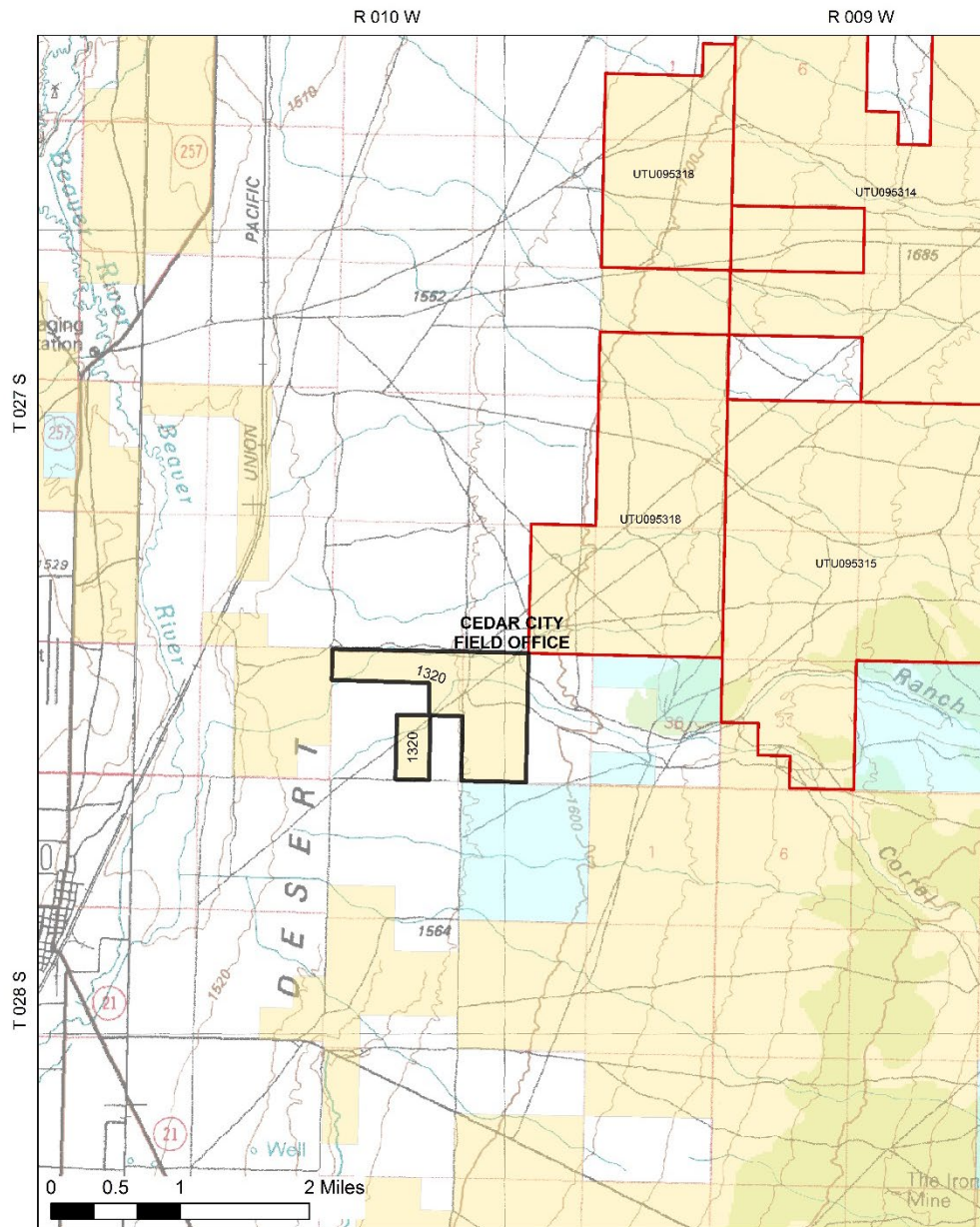


Date: 4/30/2021

Figure 6. Parcel in Cedar City Field Office with Visual Resource management Class.

June 2021

BLM Utah 2021 October Geothermal Lease Sale Cedar City Field Office Parcels

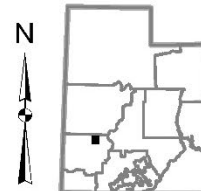


Legend

- Oct_2021_Geothermal Parcel
- BLM - Geothermal Lease
- Bureau of Land Management (BLM)
- Private
- State

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North

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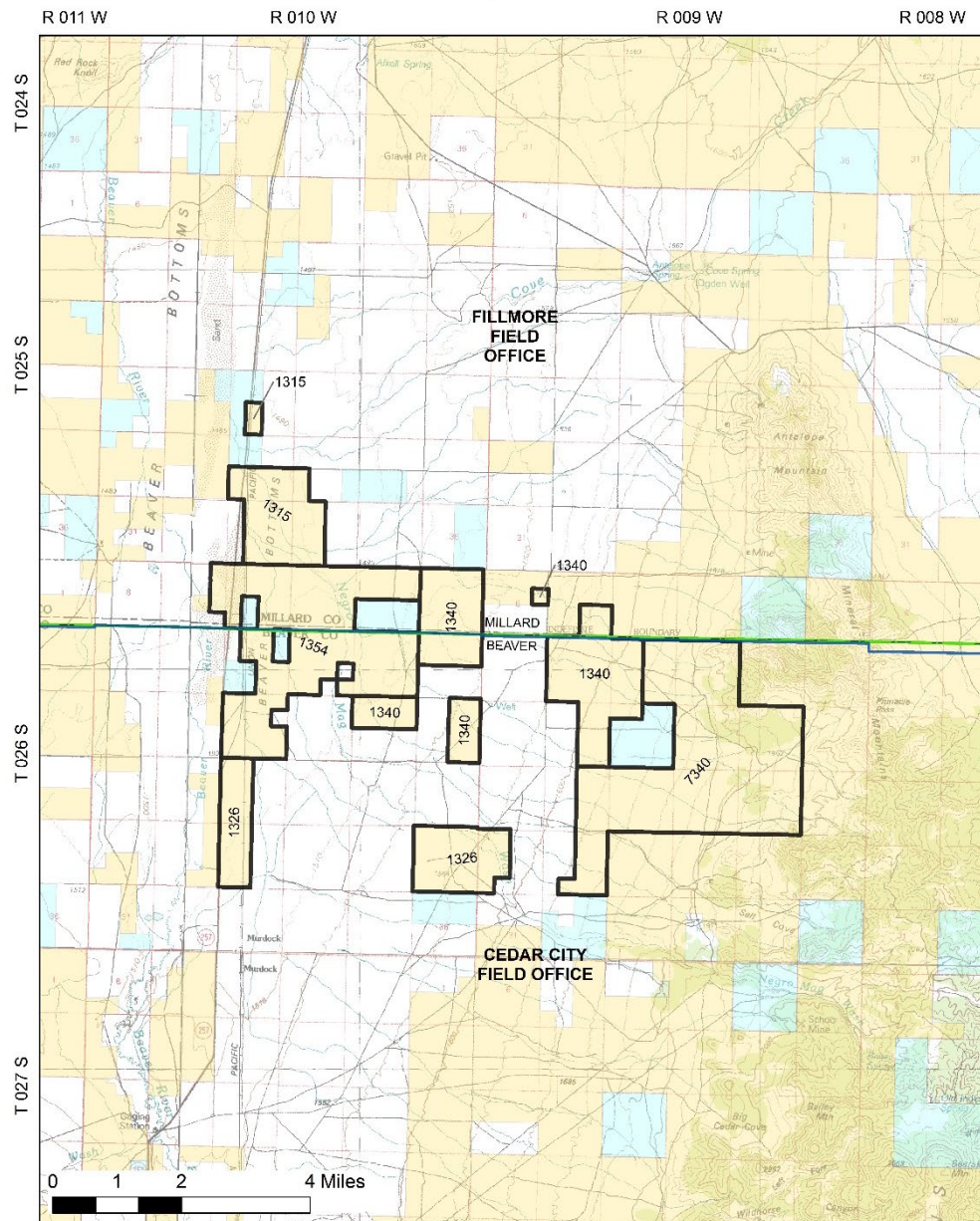


Date: 4/30/2021

Figure 7. Parcel in Cedar City Field Office with Active Geothermal Leases (red).

June 2021

BLM Utah 2021 October Geothermal Lease Sale Fillmore & Cedar City Field Office Parcels



1:100,000

Legend

- Oct_2021_Geothermal Parcel
- Bureau of Land Management (BLM)
- Private
- State

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North



Date: 4/30/2021

Figure 8. Parcels in Cedar City and Fillmore Field Offices with Land Status.

June 2021

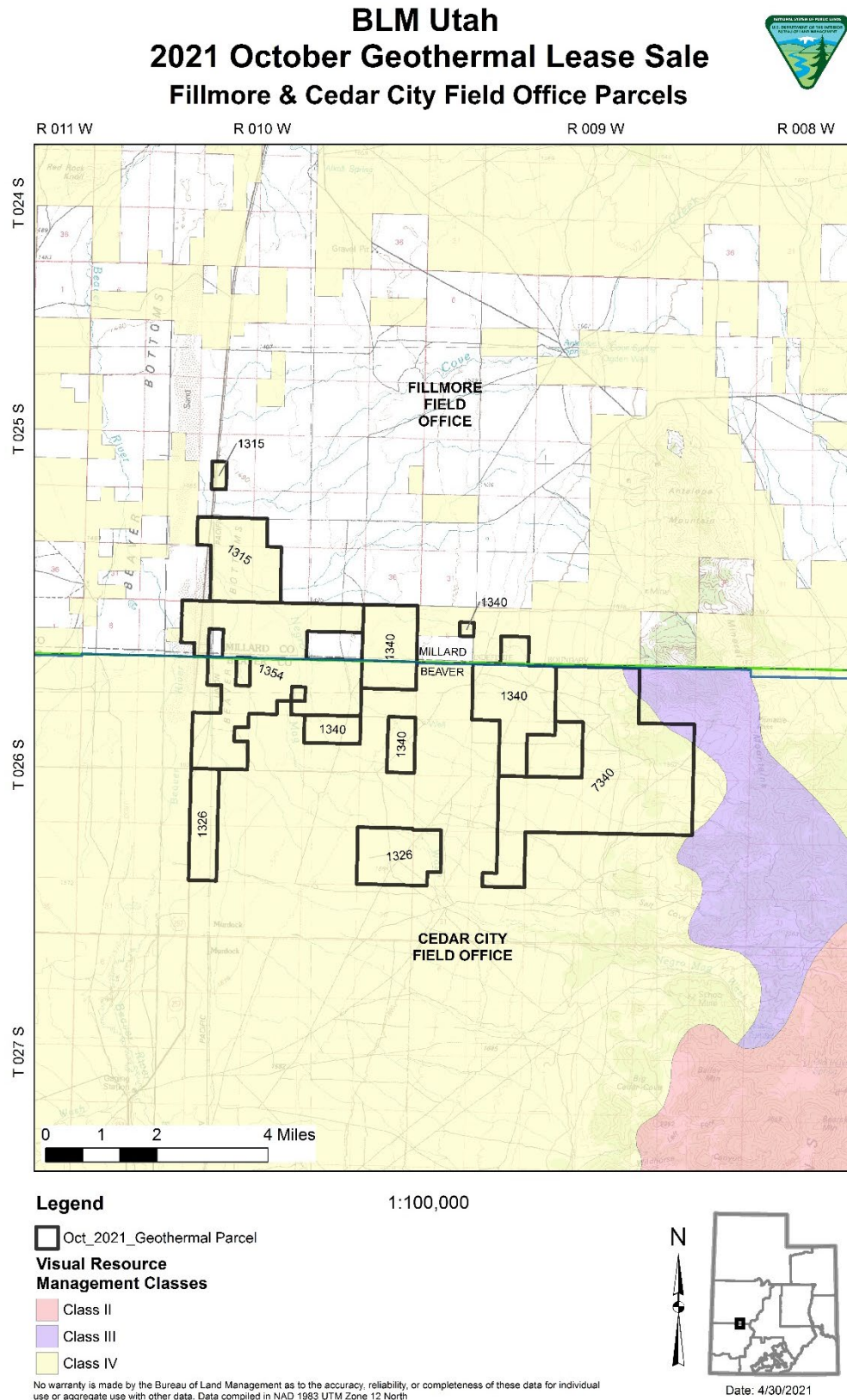
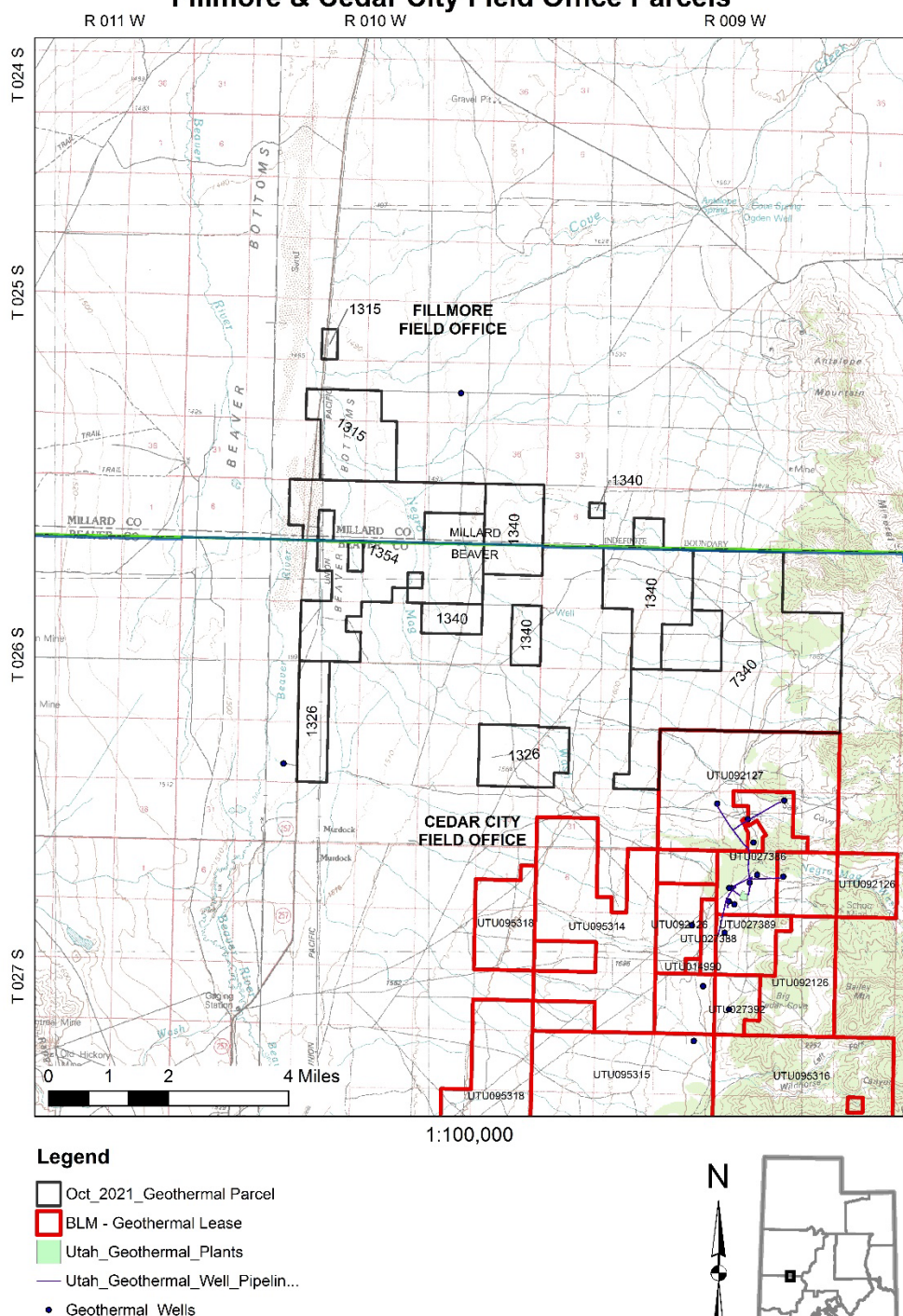


Figure 9. Parcels in Cedar City and Fillmore Field Offices with Visual Resource Management Class.

BLM Utah
2021 October Geothermal Lease Sale
Fillmore & Cedar City Field Office Parcels

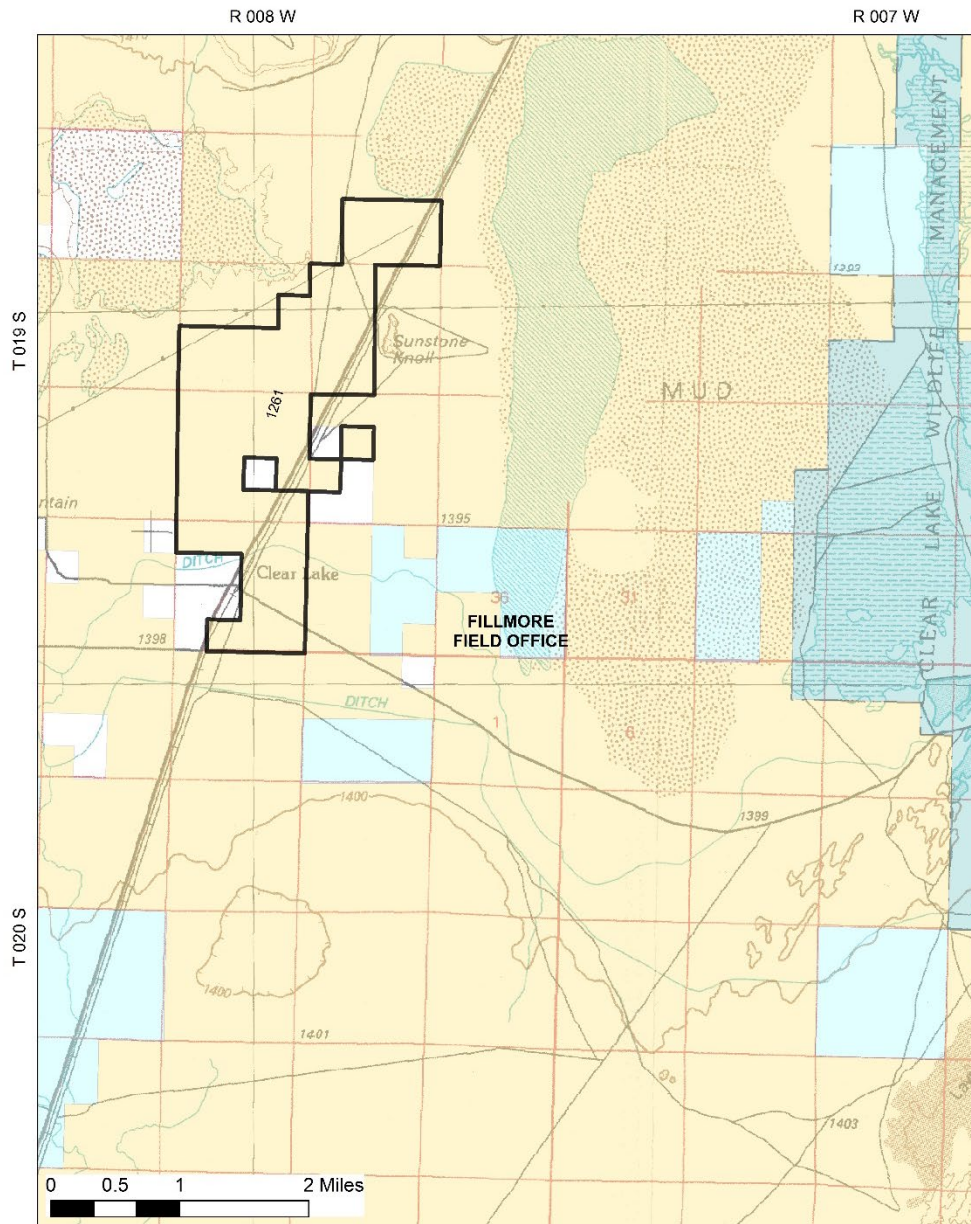


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North

Figure 10. Parcels in Cedar City and Fillmore Field Offices with Active Geothermal Leases (red) and Existing Geothermal Wells.

June 2021

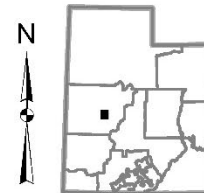
BLM Utah
2021 October Geothermal Lease Sale
Fillmore Field Office Parcels

**Legend**

- Oct_2021_Geothermal Parcel
- Bureau of Land Management (BLM)
- Private
- State
- State Wildlife Reserve/Management Area

1:50,000

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North

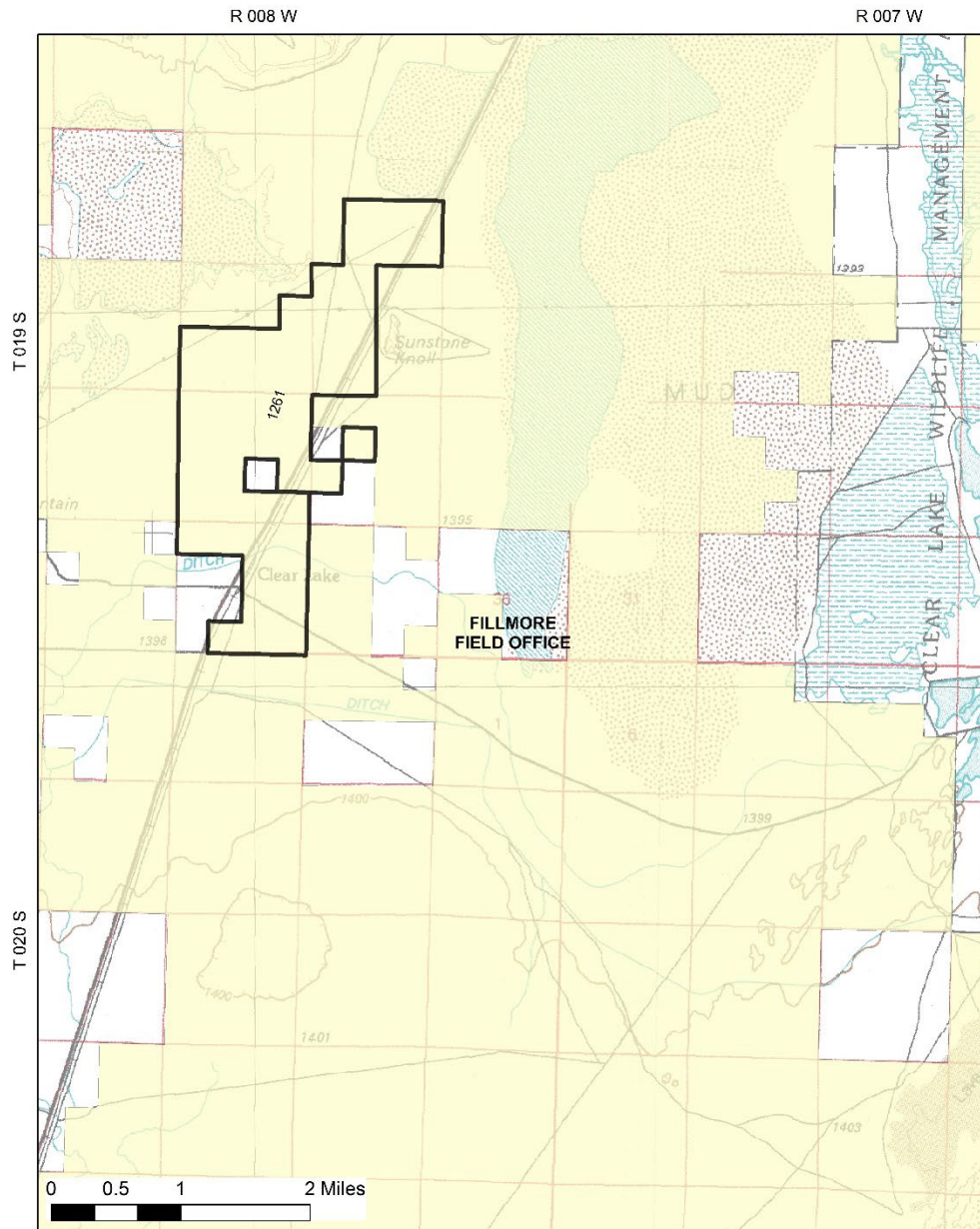


Date: 4/30/2021

Figure 11. Parcel in Fillmore Field Office with Land Status.

June 2021

**BLM Utah
2021 October Geothermal Lease Sale
Fillmore Field Office Parcels**



1:50,000

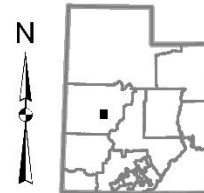
Legend

Oct_2021_Geothermal Parcel

**Visual Resource
Management Classes**

Class IV

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North

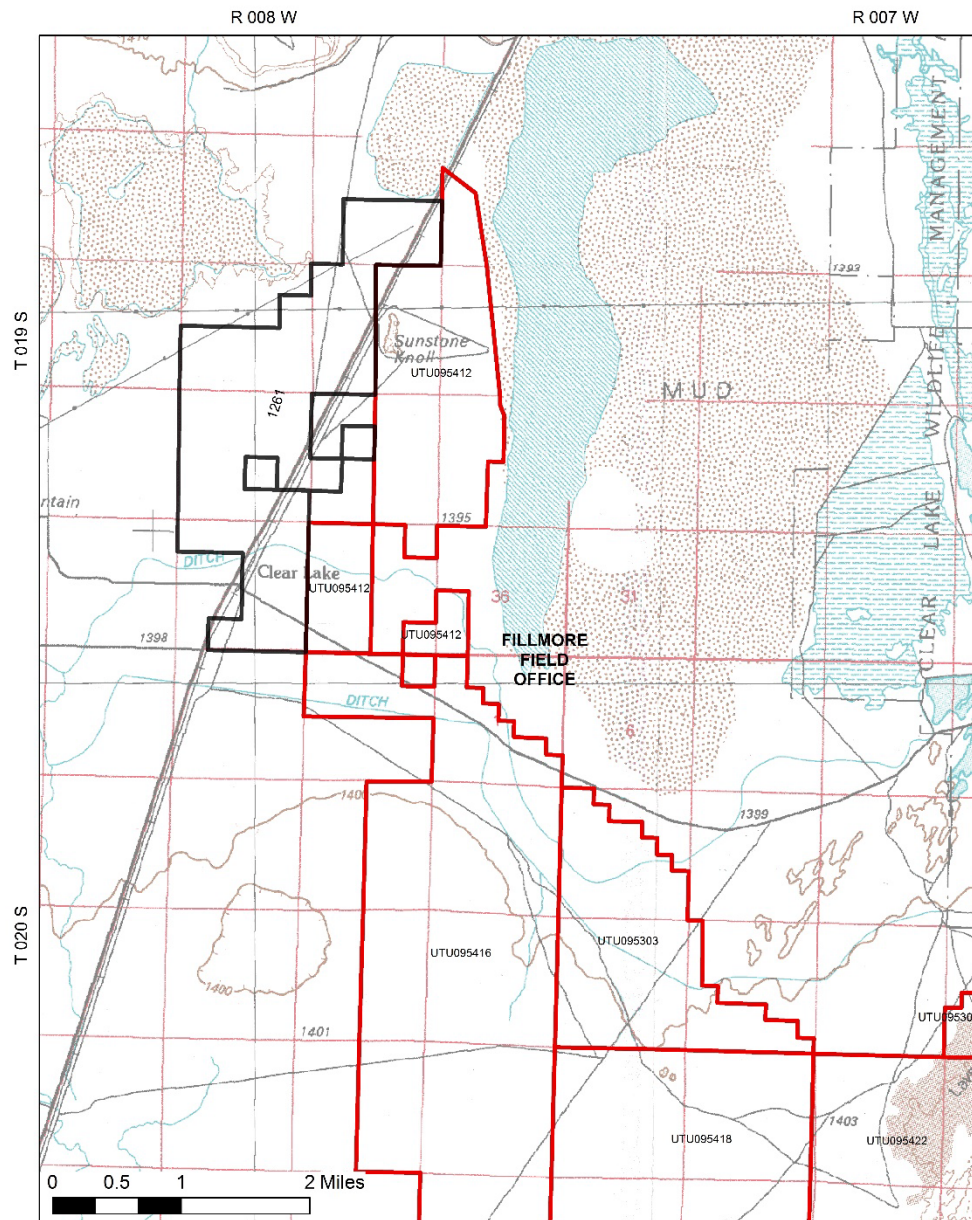


Date: 4/30/2021

Figure 12. Parcel in Fillmore Field Office with Visual Resource management Class.

June 2021

BLM Utah
2021 October Geothermal Lease Sale
Fillmore Field Office Parcels

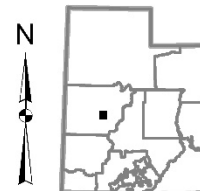


1:50,000

Legend

- Oct_2021_Geothermal Parcel
- BLM - Geothermal Lease

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data compiled in NAD 1983 UTM Zone 12 North



Date: 4/30/2021

Figure 13. Parcels in Fillmore Field Office with Active Geothermal Leases (red).

Appendix D – Interdisciplinary Parcel Review Team Checklist

DETERMINATION OF STAFF:

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required/resource has been previously analyzed (i.e., FEIS, EAs, ARMPA, RMP) resulting in no further impact than what was analyzed, and previously disclosed

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section C of the DNA form. The Rationale column may include NI and NP discussions.

PI = present with potential for relevant impact that need to be analyzed in detail

Applicable to all Field Offices

Determi- nation	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
Air			
NC	Air Quality	<p>Air quality in the Fillmore and Cedar City Field Offices, where parcels are located, is considered good (BLM 2020). The area is in attainment or unclassifiable for all National Ambient Air Quality Standard (NAAQS). Air Quality Index data from 2016 to 2018 for Iron County shows there were no days with unhealthy air. Data from monitoring stations in the county show no exceedances of the NAAQS.</p> <p>Development of lease parcels may result in emissions of criteria air pollutants (Nitrogen Oxides (NOx), Carbon Monoxide (CO), Particulate Matter (PM), and Sulfur Oxides (SOx)) and hazardous air pollutants (HAPs). Air pollutant emissions are likely to result from wind erosion of disturbed areas, construction of roads and other infrastructure, drill rig equipment, and from tailpipes of heavy machinery. Emissions occurring from construction activities will be temporary and not affect the long-term attainment of NAAQS. Application of dust control measures required by Utah Administrative Code R307-205-5 will minimize impacts from fugitive dust.</p> <p>The primary pollutant of geothermal power plants is hydrogen sulfide. The operation of a geothermal power plant emits little to no air pollutants. Emissions primarily occur during the</p>	<p>Erik Vernon 6/1/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>venting of gases to the atmosphere from dry steam or flash steam power plants. Steam and flash power plants emit minimal amounts of hydrogen sulfide. Binary power plants emit virtually no hydrogen sulfide or other gases because they operate using a closed-loop system. It is unknown at this time what type of geothermal power plant may be developed on lease parcels. If hydrogen sulfide is found in the gas stream of geothermal wells, emissions to the atmosphere must not exceed applicable Federal, State, or regional air pollution standards as identified in Geothermal Order 4 – General Environmental Protection Requirements.</p> <p>Before developing a geothermal power plant, a lessee would need to coordinate with the Utah Division of Air Quality to obtain a permit for equipment that emit air pollutants. The air quality permits for the existing Cove Fort (DAQE-AN145520002-13), Blundell (DAQE-AN133100008-14), and the Thermo No. 1 (DAQE-AN141100004-12) geothermal power plants provide an estimate of potential emissions from developing lease parcels. Criteria pollutants emissions from these facilities and a potential plant on lease parcels are less than 6 tons per year. Emissions are also below the thresholds listed in Utah Administrative Code R307-410 requiring additional review of air quality impacts. Facility emissions below these thresholds are not considered to have an adverse impact to air quality in attainment areas.</p> <p>Geothermal energy sources can have positive effects on air quality by reducing the use of energy sources such as fossil fuels that emit more air pollutants. However, at the leasing stage it is unknown if lease parcel development would result in a replacement of existing energy sources or to meeting increasing energy needs.</p> <p>Development of lease parcels is not anticipated to have an adverse impact on air quality. Construction emissions would be temporary and not have a long-term impact on air quality. Emissions from a power plant would be below levels of concern. The potential impacts of geothermal development on air quality were adequately analyzed in the RMP/EIS.</p> <p><u>Lease Notices:</u> UT-LN-96, UT-LN-99, UT-LN-101 and UT-LN-102 applied to all parcels</p>	
NC	Greenhouse Gases	<p>Greenhouse gases (GHG) would primarily be emitted from heavy equipment used to drill a geothermal well and construct a power plant. Construction emissions would be a single occurrence and not have a measurable impact on the climate. Emissions of carbon dioxide (CO₂) may also occur during the venting of gases if a steam or flash powerplant is developed on lease parcels. A binary power plant would emit almost no GHGs as they operate using a closed-</p>	<p>Erik Vernon 6/1/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>loop system. As identified in the 2008 Geothermal PEIS, estimated carbon dioxide emissions from geothermal power plants is 0.20 lb CO₂/kWh, which is much less than the emissions from coal (2.095 lbs CO₂/kWh) and natural gas (1.321 lbs CO₂/kWh) power plants. If a geothermal plant on lease parcels is developed as a replacement to fossil fuel power plants then a net decrease in global GHG emissions would occur and there would be a positive climate impact. However, it's unknown at the leasing stage if a geothermal power plant would be built on the offered parcel or if it is built to replace energy from a retiring fossil fuel power plant.</p> <p>Additional GHG emissions would occur from equipment used to operate the facility. The air quality permits for the existing Cove Fort (DAQE-AN145520002-13), Blundell (DAQE-AN133100008-14), and the Thermo No. 1 (DAQE-AN141100004-12) geothermal power plants in Utah list carbon dioxide equivalent (CO₂e) emissions from facility equipment of 632 CO₂ equivalent (CO₂e), 44.3 CO₂e, and 47.36 CO₂e tons per year respectively. These emissions are considered de minimis since they are well below the EPA GHG reporting threshold of 25,000 tons per year of CO₂e. A geothermal power plant developed on lease parcels would likely have similar emissions to these other facilities and have a minor impact on climate over the life of the facility.</p>	
Cultural			
NC	Cultural Resources	<p>BLM archaeologists compiled cultural resource data from the Cedar City and Fillmore Field Offices cultural resource libraries, GIS data (CURES), the Utah Department of Heritage and Arts Archaeological Records Database (UDAM) and Sego database. These data sources contain information on all the recorded cultural resource sites and cultural resource surveys conducted within and adjacent to the proposed lease parcels.</p> <p>BLM archaeologists at the Field and State Office level reviewed this data against the lease sale parcel locations to determine if geothermal development could occur in accordance with the appropriate Reasonably Foreseeable Development Scenario for each parcel, without incurring adverse effects to historic properties, taking into consideration impacts to cultural resources as well. The parcels were also reviewed for the application of stipulations and lease notices as required by the Cedar City and Fillmore Field Office Resource Management Plans.</p> <p>For future undertakings related to this lease sale, the BLM will not approve any ground disturbing activities until it completes its obligations to consider cultural resources under the</p>	Tylia Varilek 5/13/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>NEPA, the NHPA, and other authorities specific to those future undertakings. Consideration of impacts to cultural resources and potential adverse effects to historic properties will be taken into account during the review stage of site-specific development plans.</p> <p>The Cultural Resource Stipulation as required by Handbook H-3120-1 applies to all parcels. The stipulation reads as follows:</p> <p style="padding-left: 40px;">This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.</p> <p>Additionally, stipulations GEO-S-01 and GEO-S-02 apply to all Cedar City Field Office parcels, Lease Notice UT-GEO-LN-03: Paleontological and Cultural applies to all parcels, and Lease Notice UT-LN-64: National Historic Trails or Historic Properties applies to Fillmore Field Office parcels only.</p> <p>As of today [ongoing], consultation with Utah State Historic Preservation Office is pending the completion of the October 2021 Geothermal Cultural Resources Specialist Report.</p> <p>BLM consultation with Native American Tribes is ongoing.</p> <p><u>Stipulations</u></p> <p>UT-GEO-S-01 and UT-GEO-S-02 to all Cedar City Field Office parcels'</p> <p><u>Lease Notices</u></p> <p>UT-GEO-LN-03 to all parcels</p> <p>UT-LN-64 to Fillmore parcels.</p>	
NC	Native American	<p>The following Tribes were invited to consult on this project via certified letter on May 3, 2021: Confederated Tribes of the Goshute, Paiute Indian Tribe of Utah, Skull Valley Band of Goshute,</p>	Tylia Varilek

Determination	Resource	Rationale for Determination	Parcel Reviewer
	Religious Concerns	<p>Hopi Tribe, Ute Indian Tribe, Northwestern Band of Shoshone, Eastern Shoshone Tribe, Te-Moak Tribe of Western Shoshone, and the Shoshone-Bannock Tribes of the Fort Hall Reservation.</p> <p>The Kaibab Band of Paiute Indians were additionally invited to consult via certified mail and email on May 14, 2021.</p> <p>No BLM known Traditional Cultural Properties or Sacred Sites are located within the parcels. However, resources and locations of Native American religious and traditional concern may be present within the proposed parcels. The BLM will consult with Indian tribes on a government-to-government basis, if requested by any Tribe. Additional coordination and consultation would be initiated at the GPD stage. BMPs, SOPs and site-specific mitigation may be applied at the GPD stage as Conditions of Approval (COAs).</p> <p>Tribal consultation is ongoing.</p>	5/14/2021
Environmental Justice and Socioeconomics			
NC	Environmental Justice	<p>As defined in EO 12898, minority and low-income populations do occur within or use areas within Beaver, and Millard Counties. All citizens can file an expression of interest or participate in the bidding process (43 CFR 3120.3-2). The stipulations and notices applied to the subject parcels do not place an undue burden on these groups. Leasing the nominated parcels would not cause any disproportionately high or adverse effects on minority or low-income populations. BMPs, SOPs and site-specific mitigation may be applied at the GPD stage as COAs. (BLM 2021). Should leases be sold and parcels be moved forward for exploration and development, additional analysis for EJ impacts would have to be completed at the GPD stage.</p> <p>Additional EJ information is detailed in 2008 Geothermal PEIS at Sections 3.18 (pages 3-199 through 3-214), 4.18 (pages 4-134 through 4-144), and 5.4.16 (page 5-25).</p> <p>Data sources:</p> <ul style="list-style-type: none"> • EPA EJScreen: http://www.epa.gov/ejscreen • Headwaters Economics BLM SEP: https://headwaterseconomics.org/tools/blm-profiles/ 	<p>R.B. Probert 5/10/2021</p> <p>G. Ginouves 4/29/2021</p> <p>Angela Wadman 8/31/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
NC	Socio-Economics	<p>Until an GPD is received, the parcels would still receive use by county residents and other visitors. The project could contribute to the public's use of the end product and long-term energy needs within the region.</p> <p>Based on the RFDS, a minor/minimal quantifiable additional or decreased economic impact to the local area/counties would be caused by exploration or development. Exploration or development could provide some economic gain. The construction, operation and maintenance of geothermal infrastructure on a lease could contribute to local, county, state, and regional economies, including the creation of jobs, taxes/revenue, and supporting industries (such as amenities, personal incomes, retail). The parcel areas would still receive use by county residents and other visitors including recreationists regardless of alternative selected.</p> <p>Refer to the Economic Profile System Reports prepared on 05/28/2021 (BLM 2021) (A Profile of Agriculture, Public Land Amenities, A Profile of Demographics, A Profile of Federal Land Payments, A Profile of Government Employment, A Profile of Land Use, A Profile of Mining, Including Oil & Gas, A Profile of Non-Labor Income, A Profile of Service Sectors, A Profile of Socioeconomic Measures, A Profile of Timber and Wood Products, A Profile of Industries that Include Travel & Tourism, A Profile of Development and the Wildland-Urban Interface, and A Summary Profile). Additional information is contained in the county general plan and its corresponding resource management plan. Land uses in county and parcel areas would continue. Land use plan (as amended) allocations would not be altered.</p> <p>Additional socioeconomic information is detailed in 2008 Geothermal PEIS at Sections 3.18 (pages 3-199 through 3-214), 4.18 (pages 4-134 through 4-144), and 5.4.16 (page 5-25).</p> <p>BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.</p> <p>Data sources:</p> <ul style="list-style-type: none"> • EPA EJScreen: http://www.epa.gov/ejscreen • Headwaters Economics BLM SEP: https://headwaterseconomics.org/tools/blm-profiles/ 	<p>R.B. Probert 5/10/2021 G. Ginouves 4/27/2021 Angela Wadman 8/31/2020</p>
Wildlife			

Determination	Resource	Rationale for Determination	Parcel Reviewer
NP	Greater Sage-Grouse	The lease parcels identified within the Cedar City and Fillmore Resource Management Areas are located outside designated GRSG PHMA & GHMA and do not pose a threat to this species.	Christine Fletcher 4/19/2021
NC	Migratory Birds	<p>The following documents are incorporated: Utah Wildlife Action Plan (2015), Utah Partners in Flight Avian Conservation Strategy Version 2.0. (Parrish et al. 2002), Birds of Conservation Concern (USFWS 2008), Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds, MOU between the USDI BLM and USFWS to Promote the Conservation and Management of Migratory Birds (4/2010), and Utah Supplemental Planning Guidance: Raptor Best Management Practices (BLM UTSO IM 2006-096).</p> <p>Migratory birds are protected under the Migratory Bird Treaty Act (Executive Order 13186). MOU between the BLM and USFWS (BLM MOU WO-230-2010-04) provides BLM further direction for project-level NEPA guidance for meeting MBTA conservation and compliance. Bald and golden eagles receive additional protections under the Bald and Golden Eagle Protection Act of 1962. Potential for impacts to these eagle species is discussed below, under BLM Sensitive Species.</p> <p>Future geothermal may impact migratory birds, waterfowl and their seasonal habitats through development, operation and maintenance activities. This stage occurs when a lessee files an GDP, outlining in detail the scope of the proposed development. At that time, impacts to migratory birds and waterfowl could be fully analyzed in additional environmental documents through the NEPA process. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.</p> <p>Lease notice UT-LN-44 and UT-GEO-LN-06 will be applied to all parcels notifying potential operators of the possible need for actions to minimize impacts to migratory birds, particularly priority species identified in Utah. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs, including timing limitation or buffers. Collectively, these measures will minimize impacts to these sensitive species and no further analysis at the leasing stage is necessary.</p> <p><u>Lease Notices:</u> UT-GEO-LN-06 applied to all parcels</p>	Dave Cook 5/20/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		UT-LN-44 applied to all parcels Fillmore- UT-LN-44, UT-GEO-LN-06 Parcels 1261, 1315, 1354, 1340, 7323 Cedar City- UT-LN-44, UT-GEO-LN-06 Parcels 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340	
NC	Sensitive Wildlife Species	<p>BLM manages sensitive species in accordance with BLM Manual 6840. Available data sources, including BLM data layers and that available through Utah Conservation Data Center (UCDC) were used to determine if the known or potential habitat falls within the parcels identified for the Geothermal 2021 lease sale, with the following results for species with potential to occur. Implementation of lease notices, as stated, in addition to application of lease notices for UT-LN-49: Utah Sensitive Species, UT-LN-45: Migratory Birds and UT-LN-44: Raptors, applied to every parcel, will allow for the opportunity to make adjustments at the site specific level when an application for site development is received if circumstances change to allow potential for occurrence of these species.</p> <p>Proposed parcels include the following wildlife habitats:</p> <p>Burrowing owl 1315, 1354, 1340, 7323, 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Ferruginous hawk 1315, 1354, 1340, 7323, 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Golden Eagle 1315, 1354, 1340, 7323, 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Kit fox 1315, 1354, 1340, 7323, 7297, 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Monarch butterfly 1315, 1354, 1340, 7323, 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Western Bumblebee 1315, 1354, 1340, 7323, 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Bald eagle 1315, 1354, 1340, 7323, 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Short-eared owl 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Dark kangaroo mouse, 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p>	Dave Cook 5/20/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>Long-billed Curlew 1320, 1326, 1340, 1354</p> <p>Northern Goshawk 1340</p> <p>Allen's Big-eared bat 1340</p> <p>Big Free-tailed bat 1309, 7327, 1340</p> <p>Fringed Myotis 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Pygmy rabbit 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Spotted bat 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p>Townsend's Big-eared bat 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, 7340</p> <p><u>Stipulations/Lease Notices:</u></p> <p>UT-LN-44, UT-LN-45, UT-LN-49, UT LN-147, and UT-LN-156: All Parcels</p> <p>UT-LN-47 on parcels 1340, 7340, 1326, 1320, 1354, 7323, 7327, 1303, 1309</p> <p>Cedar City: UT-LN-44, UT-LN-46, UT-LN-104, UT-LN-107, UT-LN-142, and UT-S-280: All Parcels</p>	
NI	Threatened, Endangered, Candidate or Proposed Animal Species	<p>As per the Record of Decision and RMP Amendments for Geothermal leasing in the Western United States (BLM 2008), the standard endangered species stipulation as per Handbook H-3120-1 is attached to all parcels. Applying the appropriate T&E Lease Notices developed through consultation with the USFWS are designed to mitigate potential impacts from mineral development on the identified lease parcels.</p> <p>For all parcels, applying the appropriate T&E Lease Notices developed through consultation with the USFWS are designed to mitigate potential impacts from geothermal development (categorized as fluid minerals in the relevant Land Use Plan) on the identified lease parcels. Requirements outlined in the relevant RMP will adequately mitigate potential impacts at the leasing stage to Threatened, Endangered or Candidate (ESA) animal species.</p> <p>To identify species that may be present near or within the parcels identified for the Geothermal 2020 lease sale, the BLM referred to the USFWS Planning, and Conservation (IPaC) System. The IPaC lists the following endangered animal species as potentially occurring within ½ mile</p>	<p>Aaron Roe</p> <p>5/18/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>of parcels: Utah prairie dog, California condor and yellow-billed cuckoo. No designated critical habitat for these species occurs in the parcels proposed for the Geothermal 2021 lease sale.</p> <p>Cedar City</p> <p>For each of the named species below, the BLM completed programmatic consultation in 2004 and 2007, related to impacts associated with fluid mineral leasing and development. Additional consultation with USFWS will be required prior to the implementation of any project that ‘may affect’ a listed species or habitat. Additional conditions of approval may also be applied to areas of development at that time to ensure protection of ESA animal species and mitigation of potential project impacts.</p> <p>California condor:</p> <p style="padding-left: 40px;">There are no known occurrences or nesting sites within the lease area as breeding populations are restricted to California, Northern Arizona and far southern Utah near release sites. However, this species travels widely during foraging and the boundary for the delineation of potential occurrence for the two populations of the condor endangered and non-essential population, relevant to this action, were grossly designated as the areas south of the Beaver-Iron County line (endangered), and south and east of Interstates 70 and 15, respectively (NEP). The extreme southern portion of parcel 020 is located within the geographic area designated for possible occurrence of endangered individuals. Condors prefer mountainous country at low and moderate elevations, especially rocky and brushy areas near cliffs. No potential nesting habitat is located within 1 mile of the parcels.</p> <p>Yellow-billed cuckoo:</p> <p style="padding-left: 40px;">Yellow-billed cuckoos are considered a riparian obligate and are usually found in large tracts of cottonwood/willow habitats with dense sub-canopies (below 10 m [33 ft]). There are no areas of riparian forest greater than 12 acres that would provide breeding habitat for yellow-billed cuckoo within ½ mile of any parcels within the Cedar City Field Office.</p>	

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>Monarch butterfly</p> <p>Potential habitat for the monarch butterfly may be present within or adjacent to the proposed parcels. UT-LN-49: Utah Sensitive Species and UT-LN-156: Pollinators and Pollinator Habitat would be attached to all proposed parcels</p> <p>Fillmore</p> <p>For each of the named species below, the BLM completed programmatic consultation in 2004, 2007, and 2020 related to impacts associated with fluid mineral leasing and development. Additional consultation with USFWS will be required prior to the implementation of any project that ‘may affect’ a listed species or habitat. Additional conditions of approval may also be applied to areas of development at that time to ensure protection of ESA animal species and mitigation of potential project impacts.</p> <p>Utah prairie dog:</p> <p>Parcel 1261 is within ½ mile of the USFWS defined Areas of Influence (AOI)/survey buffer for a historical prairie dog occurrence. However, multiple habitat models have been developed for this species and no suitable habitat is identified within a ½ mile buffer of the parcels</p> <p>Yellow-billed cuckoo:</p> <p>Yellow-billed cuckoos are considered a riparian obligate and are usually found in large tracts of cottonwood/willow habitats with dense sub-canopies (below 10 m [33 ft]). There are no areas of riparian forest greater than 12 acres that would provide breeding habitat for yellow-billed cuckoo within ½ mile of any parcels within the Cedar City Field Office.</p> <p>Monarch butterfly</p> <p>Potential habitat for the monarch butterfly may be present within or adjacent to the proposed parcels. UT-LN-49: Utah Sensitive Species and UT-LN-156: Pollinators and Pollinator Habitat would be attached to all proposed parcels</p> <p><u>Lease Notices</u></p> <p>UT-LN-49 and UT-LN-156 applied to all parcels</p>	

Determination	Resource	Rationale for Determination	Parcel Reviewer
NI	Fish and Wildlife Excluding USFWS Designated Species	<p>Parcels were evaluated for State identified game species, including the including the American bison, cougar, black bear, American bison, moose, Rocky Mountain elk, mule deer, pronghorn antelope, mountain goat, California bighorn sheep, desert bighorn sheep, Rocky Mountain bighorn sheep, snowshoe hare, wild turkey, chukar, California quail, Gambel's quail, band-tailed pigeon, dusky/blue grouse, sharp-tailed grouse, ruffed grouse, white-tailed ptarmigan and ring-necked pheasant using UDWR data. Habitat suitable for those listed below is expected to occur. Where species specific notices are not noted, implementation of UT-LN-49: Utah Sensitive Species will allow modifications at the development permit stage to minimize impacts.</p> <p>Proposed parcels include the following wildlife habitats as identified by currently available UDWR GIS layers: Bighorn sheep lambing: 1340 Pronghorn: all parcels Crucial Mule deer: 1340</p> <p><u>Stipulations/Lease Notices:</u></p> <p>UT-LN-20: Rocky Mountain/Desert Bighorn Sheep Crucial Lambing and Rutting Habitat is applied to Parcel 7340.</p> <p>UT-LN-13: Pronghorn Winter Habitat and UT-LN-14: Pronghorn Fawning Habitat are applied to all Parcels.</p> <p>UT-LN-20, UT-S-239 parcel 7340</p> <p>UT-LN-13 and UT-LN-14- All Parcels</p>	Dave Cook 5/20/2021
Plants			
NI	Sensitive Plant Species	<p>Specific parcels have been identified as having occurrence, or potential occurrence of several species of plants that may require modification of surface use plans to avoid disruptive or harmful activities.</p> <p>Leasing of the proposed leases would not, by itself, authorize any ground disturbance; however, the proposed lease sale has the potential to impact habitat through future geothermal development. Although site-specific effects cannot be analyzed until an exploration or development application is received, attachments of stipulations and notices to leases will</p>	Aaron Roe 5/15/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>assure the opportunity to make adjustments, such as design modifications, at the site specific level when a GDP is received, to address specific wildlife and plant resources.</p> <p>Each of the following parcels would have the following lease notices attached to the lease parcels UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed</p> <p>Cedar City Astragalus oophorus var lonchocalyx: 1309 Sphaeralcea caespitosa var caespitosa: 7323, 7327, 1303, 1309 Fillmore No species</p> <p><u>Lease Notice</u> UT-LN-49 and UT-LN-51 to all parcels.</p>	
NP	Threatened, Endangered, Candidate or Proposed Plant Species	<p>The following parcels intersect the USFWS AOI for <i>Spiranthes diluvialis</i>. Cedar City: 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7340 Fillmore: 1315</p> <p>This AOI was developed based on high level modeling and includes extensive areas of non-habitat (open wetland habitats that maintain soil moisture into late summer flowering period). Through a GIS review of habitat using Landsat derived NDVI values for the late summer and aerial imagery, no wetlands that maintain moisture into the late summer are present within 300 feet of the proposed parcels. Therefore, there is no potential habitat for the species present.</p> <p>No other listed or candidate species is present.</p>	<p>Aaron Roe 5/18/2021</p>
NI	Invasive Species/ Noxious Weeds (EO 13112)	<p>Executive Order 13112 requires Federal Agencies to promote activities in a manner which avoids introduction of spread of invasive species. Invasive species introduced to Utah affect plant and animal communities Surface disturbing activities have the potential to introduce/spread invasive species/noxious weeds. The BLM "Partners Against Weeds, An Action Plan for the Bureau of Land Management" provides strategies to prevent and control spread of noxious weeds) Additional control and procedural information is documented in</p>	<p>J. Bulloch 4/26/2021 Trevor Riding 5/13/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>the Programmatic EIS Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States and its Record of Decision, (BLM 2007, BLM 2016). Noxious weeds are invasive exotic plants designated by the State of Utah as being hazardous to public health, the environment, or the economy (Utah Code Title 4, Chapter 17).</p> <p>Noxious/invasive weed species may be present on the subject parcels. The BLM coordinates with County and local governments to conduct an active program for control of invasive species. The lessee/operator is given notice that lands in this lease have been identified as containing or are near areas containing noxious weeds. Standard operating procedures such as washing of vehicles and annual monitoring and spraying along with site specific mitigation applied as conditions of approval (COA) at the GDP stage should be sufficient to prevent the spread or introduction of Invasive, Non-native species. All disturbed areas and piles of topsoil should be reseeded with weed free seed the first fall after the disturbance is made to provide competition against weeds.</p> <p>Other constraints, including the use of certified weed free seed and vehicle/equipment wash stations, would be applied as necessary at the GDP stage as documented in filing plans and conditions of approval. Control measures would be implemented during any ground disturbing activity. Treatment will occur as part of regular operations, BMPs, SOPs and site-specific mitigation applied at the GDP stage as COAs. These expectations are required for all parcels in the lease. Application of UT-LN-52 is warranted on all parcels. Negligible impacts would be expected as a result of leasing and exploration.</p> <p><u>Lease Notice:</u> UT-LN-52: all Parcels</p>	
NI	Vegetation Excluding Special Status Species	<p>Vegetation resources will not be impacted to the degree that will require detailed analysis in this DNA. This proposed sale and issuance of an oil and gas leases would not authorize any ground disturbances which could affect vegetation resources. Leasing is an administrative action that does not result in any surface disturbance. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. There would be no impacts to vegetation resources through sale of leases. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an GDP be filed and granted. The applied lease stipulations and notices will notify buyers during sale of leases and allow for the opportunity to make adjustments at the site-specific level when an GDP is received and will ensure impacts are addressed. Future</p>	<p>E. Shotwell 05/03/2021 Brian Taylor 5/13/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>development proposals on the leases would be subject to the standard lease terms, and all applicable laws, regulations and onshore orders in existence at the time of lease issuance. Any activity that involves surface disturbance or direct resource impacts will have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis. Rehabilitation would be required to protect the investment and integrity vegetation enhancement treatments that have been completed within the area. Per Geothermal Resource Order 4, Operating plans shall be designed so that operations will result in the least disturbance of land, water, and vegetation. Existing roads shall be used where suitable. Entry upon certain environmentally fragile land areas, as designated by the surface management agency, may be either seasonally restricted or restricted to special vehicles or transportation methods which will minimize disturbance to the surface or other resources as specified by the authorized officer.</p> <p>Operators must prevent unnecessary or undue degradation (43 CFR 3262.11). Additional detailed analysis in this DNA is not necessary.</p>	
NC	Woodland / Forestry	<p>Cedar City Woodland/Forestry resources are not present in the CCFO parcels and are not impacted by the proposed lease sale.</p> <p>Fillmore Scattered sparse woodlands exist in areas adjacent to all parcels included in the proposed lease sale, but not in quantities sufficient to establish public harvest areas. Exploration or development would not limit use or access to any established wood sale areas. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs. Per 43 CFR 5400 Sale of Forest Products, permits are required for severance and removal of forest products regardless of whether the product is utilized or not.</p>	<p>C. Peterson 04/26/2021 Eric Reid 5/10/2021</p>

June 2021

**Color Country District
Cedar City Field Office**

Determi- nation	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
Recreation			
NP	Areas of Critical Environmental Concern	GIS overlays indicate the parcels do not intersect with any ACECs	Sheri Wysong 5/24/2021 .
NP	National Historic Trails	GIS overlays indicate the parcels do not intersect with any NHTs	Sheri Wysong 5/24/2021 .
NI	Recreation	Dispersed recreation may occur on the parcels, but there are no recreational designations or facilities	Sheri Wysong 5/24/2021 .
NI	Travel/ Transportation	No scenic byways, the parcels are accessible by State and County roads.	Sheri Wysong 5/24/2021 .
NI	Visual Resources	Parcels are within compatible VRM categories. No resources present that have concerns with visual impairment.	Sheri Wysong 5/24/2021 ..
NP	Wild and Scenic Rivers	GIS overlays indicate the parcels do not intersect with any WSRs	Sheri Wysong 5/24/2021 .
NP	Wilderness/ Wilderness Study Area	GIS overlays indicate the parcels do not intersect with any WSAs. No wilderness Areas in the FO	Sheri Wysong 5/24/2021 ..
NP	Lands with wilderness characteristics	GIS overlays indicate the parcels do not intersect with any LWCs	Sheri Wysong 5/24/2021 .
Water Resources			
NC	Water Resources/ Quality (drinking/	There are no identified ground or surface drinking water protection zones in the area of the lease parcels. However, lease notice UT-GEO-LN-07, notifies lessees of their responsible compliance with Federal, State and Local laws. Multiple water rights held by both BLM and individuals are located in or near the lease	E. Shotwell 05/03/2021 Jared Dalebout 5/25/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
	surface/ ground)	<p>parcels. These water rights have beneficial uses of geothermal, stockwater, irrigation, and domestic. Water quality must continue to be acceptable to meet the beneficial uses of the water right. Exploration and development could cause impacts. Exploration and development could cause impacts based on proximity and potential groundwater interference from developed wells. Coordination and detailed review of existing water rights and water uses would be applied at the GDP stage.</p> <p>If a GDP is filed, SOPs required by regulation and design features would be sufficient to isolate and protect all usable ground or surface water sources before drilling or exploration begin. The operator must conduct operations that will protect quality of surface and subsurface water (43 CFR 3262.11). The SOPs include the requirements for disposal of produced water contained in Geothermal Resource Order (GRO) No. 4 and the requirements for drilling operations contained in GRO No. 2. Potential freshwater aquifers zones would be protected by the requirement of casing and cementing the drill hole to total depth. The casing would be pressure tested to ensure integrity prior to drilling out the surface casing shoe plug.</p> <p>Any activity that involves surface disturbance or direct resource impacts will have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis in order to protect water resources within the area. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs. Parcels may contain privately-owned or BLM water wells and lease notice UT-GEO-LN-09 further informs lessees of their responsibility to understand the hydrology and hydrogeology of the area to ensure compliance with Federal, State, and Local laws.</p> <p><u>Lease Notice</u> UT-GEO-LN-07, UT-GEO-LN-09, UT-LN-53, UT-LN-55: Parcels 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, and 7340</p>	
NC	Wetlands/ Riparian Zones / Floodplains	<p>Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, there are no parcels identified as containing riparian and/or wetland systems. Although there are no FEMA mapped Floodplains within Beaver County, there are potential washes with channels (as defined in EO 11988) that may receive 100-year flood requiring compliance with EO 11988, specifically parcels 1320 (Ranch Canyon), and 1326 (Negro Mag Wash). The following notice would be added to all parcels to inform potential lessees of the requirements of EO 11988: UT-LN-128: Federal Flood Risk Management Standard.</p>	<p>E. Shotwell 05/03/2021 Jared Dalebout 5/25/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>Leasing of parcels would not directly affect these resources. BMPs, SOPs, and site-specific mitigation may be applied at the GDP stage as COAs. Any activity that involves surface disturbance or direct resource impacts will have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis.</p> <p><u>Stipulations</u></p> <p>GEO-S-03, GEO-S-04, GEO-S-08: Parcels 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, and 7340</p> <p><u>Lease Notice</u></p> <p>UT-LN-128, UT-LN-53, UT-LN-54, UT-LN-55: Parcels 1303, 1309, 1320, 1326, 1340, 1354, 7323, 7327, and 7340</p>	
NC	Soils: Physical/ Biological	<p>At this stage (lease sale) there would be no impacts to vegetation resources. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an GDP be filed. If additional site-specific resource protection measures are needed to prevent unnecessary or undue degradation, these would be developed at the time of the site specific NEPA. It is expected that reclamation procedures would be required to ensure long-term vegetation impacts are minimized. Reclamation provisions/procedures would include re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, noxious weed controls, etc. Some parcels contain steep topography; additional discussion of steep slopes is contained within the minerals section. SOPs, BMPs and site-specific design features applied at the GDP stage including reclamation, may be applied as COAs.</p> <p><u>Stipulation:</u></p> <p>UT-GEO-S-07: on parcels 1340, 1354, and 7323</p> <p><u>Lease Notice</u></p> <p>UT-LN-59: Parcel 7340.</p>	E. Shotwell 05/04/2021
Rangeland Health			
NP	Farmlands (Prime or Unique)	<p>NRCS soil mapping is only available for parcels close to Milford (excluding parcels 7323, 7327, 1303, 1309). There are no prime or unique farmland soils where NRCS mapping is available. These soils would not be</p>	E. Shotwell 05/04/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		utilized in agricultural practices while retained in BLM ownership. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.	
NI	Fuels/Fire Management	Exploration or development would not conflict with the Fire Management Plan goals and objectives. The implementation of appropriate reclamation standards at the GDP stage would prevent an increase of hazardous fuels. Fuels and fire management would not be impacted by the lease process. BMPs, SOPs, and site-specific mitigation may be applied at the GDP stage as COAs.	J. Cox 5/3/2021
NI	Livestock Grazing	All parcels are located within livestock grazing allotments or private pastures. Leasing or production activities would not cause changes to grazing permit terms and conditions. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis, at the GDP stage. Impacts to livestock grazing may occur as a result of subsequent actions including exploration development, production, etc. Therefore, reclamation provisions/procedures including re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, range improvement project replacement/restoration (e.g., fences, troughs and cattle guards), noxious weed control, would be identified in future NEPA/decision documents on a case-by-case basis (at the GDP stage). BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.	E. Shotwell 05/03/2021
NP	Wild Horses and Burros	The parcels do not intersect herd areas or herd management areas.	C. Hunter 4/28/21
Lands and Minerals			
NI	Lands/Access	<p>Leasing parcels would have no effect on property boundaries. In accordance with WO IM 2011-122, cadastral survey reviews and verifies the legal land descriptions prior to lease issuance. Stone monuments may be present and would need to be avoided the same as metal cap monuments. Detailed land surveys may be warranted at the GDP stage. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.</p> <p>There are valid existing uses need that will need to be honored. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms to avoid any conflicts with the valid existing rights.</p>	<p>B. Cox 04/26/2021</p> <p>Angela Wadman 5/24/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>There are dozens of rights-of-way (ROWs) within the lease sale parcels. Existing users will need to be notified per Title 43 § 2807.14 if parcels are leased to provide existing authorized users an opportunity to provide a written recommendation as to how the proposed use may affect the integrity of, the ability, or the operation of their facility.</p> <p>Primary Access to the parcels would be via existing Class B/D roads. If parcel(s) are leased, this lease would include any needed access road(s) within said parcel. Anything that is an additional need, outside of said lease (i.e. power, fiber, etc.) may require a separate right-of-way (ROW) grant using BLM Form SF-299. No existing Class B roads should be re-routed or blocked if parcels are leased.</p> <p>The CBGA management plan has the entirety of parcel number 1326 listed for disposal.</p> <p>Public Land Order (PLO) 7818. This order withdraws acres of public lands from location and energy under the United States mining laws, subject to valid existing rights, for a period of 20 years to protect 17 Solar Energy Zones. This sale parcel is partially within the Milford South Solar Energy Zone (parcels 1315, 1326, 1340, 1354). However, the land is designated as open to oil and gas, geothermal and saleable minerals.</p>	
NI	Geology / Mineral Resources/ Energy Production	<p>Geothermal exploration could lead to an increased understanding of the geologic setting, as subsurface data obtained through lease operations may become public record. This information promotes an understanding of mineral resources as well as geologic interpretation. While conflicts could arise between geothermal operations and other mineral operations, these could generally be mitigated under GRO No.4.</p> <p>Depending on the success of geothermal drilling, the renewable heat would be extracted and delivered to market.</p> <p>Any geothermal development can be managed to avoid or work within other mineral resources. Mining claims and Mineral Materials were checked on 4/22/2021. No active mining claims, or mineral material sites were found to be associated within any parcel. In conclusion, there would be no negative effects to mineral resources. There will be no conflicts between leasable, locatable, or saleable minerals.</p> <p><u>Notices</u> UT-GEO-LN-02: Parcels 1340, 7340, 1326, 1320, 1354, 7323, 7327, 1303, 1309 UT-GEO-LN-04: Parcels 1340, 7340, 1326, 1320, 1354, 7323, 7327, 1303, 1309</p>	<p>E. Ginouves 4/22/21 Angela Wadman 6/7/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		UT-GEO-LN-08: Parcels 1340, 7340, 1326, 1320, 1354, 7323, 7327, 1303, 1309	
NI	Paleontology	<p>The surficial geology of the nominated parcels is Quaternary-age, fluvial and lacustrine deposits of gravel, sand, silt and clays. Using the Bureau's Potential Fossil Yield Classification System, the fluvial deposits would fall within Class 2, Low Potential; and portions of the lacustrine deposits, Class 3b, Unknown Potential, for vertebrate or scientifically significant invertebrate fossil resources.</p> <p>No paleontological resources are known to exist on any of the proposed parcel offerings, however the maximal shoreline of ancestral Lake Bonneville crosses portions of parcels 7323 (Pine Valley) and 1315, 1320, 1326, 1340 and 1354 (upper Milford Valley). UT-GEO-LN-05 is applied to all parcels to notify the lessee of the potential for fossils.</p> <p>Ancestral Lake Bonneville was a Pleistocene-aged lake with known occurrences of mega-fauna vertebrate fossil skeletons adjacent to the lakeshore. The nearest known vertebrate fossil occurrence of this type to the parcels was discovered in 2010 during the excavation of wind turbine foundation WGT 7-21 in Phase 2 of the Milford Flat Wind farm. This locality lies within the SE¼ sec. 3, T. 26 S., R. 10 W. (falling within parcel 1354). The fossil find was a partial camel skeleton at a depth of 6 feet. It is conceivable that Pleistocene-age fossil skeletons are present at some depth under portions of parcels 7323, 1315, 1320, 1326, 1340 and 1354. For the subject lease sale, it would be unnecessary and premature to identify anything other than a general lease notice that paleontological resource survey might be required for certain lease development activities. Thus UT-LN-71 is applied to all parcels. If a GDP is filed, specific clearances would be conducted and incorporated into that NEPA process. If paleontological resources are located, the AO would be contacted. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.</p> <p><u>Lease Notice</u> UT-GEO-LN-05 and UT-GEO-LN-03: Parcels 1315, 1320, 1326, 1340, 1354, and 7323. UT-LN-71: Parcels 1315, 1303, 1309, 7327, 1320, 1326, 1340, 1354, and 7323.</p>	E. Ginouves 4/22/21
NI	Wastes (hazardous or solid)	Hazardous materials are not known to exist on the parcels. Refer also to the Air Quality discussion for specific information on hazardous air pollutants (HAPs). Hazardous materials, if not handled properly that are associated with operations, have the potential to be spilled at the lease/drill site. However, the spill would be	T. Carlson 5/4/2021

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Determination	Resource	Rationale for Determination	Parcel Reviewer
		contained, reported, and cleaned up by the operator. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.	

**West Desert District
Fillmore Field Office**

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
Recreation			
NP	Areas of Critical Environmental Concern	GIS overlays indicate the parcels do not intersect with any ACECs.	Sheri Wysong 6/3/2021
NP	National Historic Trails	GIS overlays indicate the parcels do not intersect with any NHTs	Sheri Wysong 6/3/2021
NI	Recreation	Dispersed recreation may occur on the parcels, but there are no recreational designations or facilities	Sheri Wysong 6/3/2021
NP	Travel/ Transportation	No scenic byways, the parcels are accessible by State and County roads.	Sheri Wysong 6/3/2021
NI	Visual Resources	Parcels are within compatible VRM categories. No resources present that have concerns with visual impairment.	Sheri Wysong 6/3/2021
NP	Wild and Scenic Rivers	GIS overlays indicate the parcels do not intersect with any WSRs	Sheri Wysong 6/3/2021
NP	Wilderness/Wilderness Study Area	GIS overlays indicate the parcels do not intersect with any WSAs. No wilderness Areas in the FO	Sheri Wysong 6/3/2021
NP	Lands with wilderness characteristics	GIS overlays indicate the parcels do not intersect with any LWCs	Sheri Wysong 6/3/2021
Water Resources			

Determination	Resource	Rationale for Determination	Parcel Reviewer
NC	Water Resources/ Quality (drinking/ surface/ ground)	<p>There are no identified ground or surface drinking water protection zones in the area of the lease parcels. However, lease notice UT-GEO-LN-07, notifies lessees of their responsible compliance with Federal, State and Local laws.</p> <p>Multiple water rights held by both BLM and individuals are located in or near the lease parcels. These water rights have beneficial uses of stockwater, irrigation, and domestic. Water quality must continue to be acceptable to meet the beneficial uses of the water right. Exploration and development could cause impacts. Exploration and development could cause impacts based on proximity and potential groundwater interference from developed wells. Coordination and detailed review of existing water rights and water uses would be applied at the GDP stage.</p> <p>If an GDP is filed, SOPs required by regulation and design features would be sufficient to isolate and protect all usable ground or surface water sources before drilling or exploration begin. The operator must conduct operations that will protect quality of surface and subsurface water (43 CFR 3262.11). The SOPs include the requirements for disposal of produced water contained in Geothermal Resource Order (GRO) No. 4 and the requirements for drilling operations contained in GRO No. 2. Potential freshwater aquifers zones would be protected by the requirement of casing and cementing the drill hole to total depth. The casing would be pressure tested to ensure integrity prior to drilling out the surface casing shoe plug. UT-GEO-LN-09 further informs lessees of their responsibility to understand the hydrology and hydrogeology of the area to ensure compliance with Federal, State, and Local laws.</p> <p>Any activity that involves surface disturbance or direct resource impacts will have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis in order to protect water resources within the area. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.</p> <p><u>Stipulations</u> UT-S-131: Parcels 1261, 1315, 1340, 1354, 7323</p> <p><u>Notices</u> UT-GEO-LN-07 and UT-GEO-LN-09: Parcels 1261, 1315, 1340, 1354, 7323</p>	<p>/s/ Cassie Mellon 5/5/2021 Jared Dalebout 5/25/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
NC	Wetlands/ Riparian Zones / Floodplains	<p>The following notice would be added to all parcels to inform potential lessees of the requirements of EO 11988: UT-LN-128: Federal Flood Risk Management Standard.</p> <p>Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, no parcels were identified as containing riparian and/or wetland systems. Floodplains (as defined in EO 11988) are also associated with these lentic and lotic systems on all parcels. However, since these parcels would have the following stipulations attached, impacts from exploration/development to those resources would be prevented.</p> <p>Leasing of parcels would not directly affect these resources. BMPs, SOPs, and site-specific mitigation may be applied at the GDP stage as COAs. Any activity that involves surface disturbance or direct resource impacts will have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis.</p> <p><u>Stipulations</u> UT-S-131: Parcels 1261, 1315, 1340, 1354, 7323</p> <p><u>Lease Notice</u> UT-GEO-LN-07, UT-GEO-LN-09, UT-LN-53, UT-LN-54, UT-LN-128: Parcels 1261, 1315, 1340, 1354, 7323</p>	<p>/s/ Cassie Mellon 5/5/2021 Jared Dalebout 5/25/2021</p>
NC	Soils: Physical/ Biological	<p>At this stage (lease sale) there would be no impacts to vegetation resources. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an GDP be filed. If additional site-specific resource protection measures are needed to prevent unnecessary or undue degradation, these would be developed at the time of the site specific NEPA. It is expected that reclamation procedures would be required to ensure long-term vegetation impacts are minimized. Reclamation provisions/procedures would include re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, noxious weed controls, etc. The parcels contain steep topography; additional discussion of steep slopes is contained within the minerals section. SOPs, BMPs and site-specific design features applied at the GDP stage including reclamation, may be applied as COAs.</p>	<p>/s/ David Whitaker 5/6/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<u>Stipulation</u> UT-GEO-S-07: Controlled Surface Use – Soil Severe Erosion: Parcels 1261, 1315, 1340, 1354, 7323 <u>Lease Notices</u> UT-LN-59: Parcels 1261, 1315, 1340, 1354, 7323 UT-LN-60: Parcels 1261, 1315, 1340, 1354, 7323	
Rangeland Health			
NI	Farmlands (Prime or Unique)	Soil map units that are classified by the NRCS as farmland may intersect these parcels. None of these would be irrigated due to exploration or development activities. These soils would not be utilized in agricultural practices while retained in BLM ownership. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.	/s/ Brian Taylor 5/6/2021
NI	Fuels/Fire Management	Exploration or development would not conflict with the Fire Management Plan goals and objectives. The implementation of appropriate reclamation standards at the GDP stage would prevent an increase of hazardous fuels. Fuels and fire management would not be impacted by the lease process. BMPs, SOPs, and site-specific mitigation may be applied at the GDP stage as COAs.	/s/ Trevor Memmott 5/6/2021
NI	Livestock Grazing	Some of the parcels are located within livestock grazing allotments or private pastures. Leasing or production activities would not cause changes to grazing permit terms and conditions. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis, at the GDP stage. Impacts to livestock grazing may occur as a result of subsequent actions including exploration development, production, etc. Therefore, reclamation provisions/procedures including re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, range improvement project replacement/restoration (e.g., fences, troughs and cattle guards), noxious weed control, would be identified in future NEPA/decision documents on a case-by-case basis (at the GDP stage). BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.	/s/ Brian Taylor 5/6/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
NI	Wild Horses and Burros	The parcels do not intersect herd areas or herd management areas.	/s/ Eric Reid 5/6/2021
Lands and Minerals			
NI	Lands/Access	Leasing parcels would have no effect on property boundaries. In accordance with WO IM 2011-122, cadastral survey reviews and verifies the legal land descriptions prior to lease issuance. Stone monuments may be present and would need to be avoided the same as metal cap monuments. Detailed land surveys may be warranted at the GDP stage. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs. There are multiple rights-of-way grants issued within the proposed lease areas for various types of improvements including power and pipelines.	/s/ Fred Braun 5/6/2021
NC	Geology / Mineral Resources/ Energy Production	<p>Geothermal exploration could lead to an increased understanding of the geologic setting, as subsurface data obtained through lease operations may become public record. This information promotes an understanding of mineral resources as well as geologic interpretation. While conflicts could arise between geothermal operations and other mineral operations, these could generally be mitigated under GRO No.4.</p> <p>Depending on the success of geothermal drilling, the renewable heat would be extracted and delivered to market.</p> <p>Any Geothermal development can be managed to avoid or work within other mineral resources. Mining claims and Mineral Materials were checked on May 12, 2021. There are 4 lode claims on parcel UT-2021-10-1261, no active placer claims, and no Mineral Material sites were found to be associated within any parcel. UT-GEO-LN-08, notifying lessees of potential mining claims, would be applied to all parcels.</p> <p>In conclusion, there would be no negative affects to mineral resources. There will be no conflicts between leasable, locatable, or saleable minerals. Lease Stipulation UT-S-58, No surface occupancy on lands within Sunstone Knoll Rockhounding area, is applied to parcel 1261. UT-GEO-LN-02, Monitoring and UT-GEO-LN-04, Geotechnical Analysis are applied to all parcels in the Field Office Area. Lease stipulations and notices are created to mitigate impacts of geothermal development on other resources.</p>	/s/ Stephanie deGraffenried 5/13/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<u>Stipulations</u> UT-GEO-S-08: Parcel 1261 <u>Notices</u> UT-GEO-LN-02: Parcels 1261, 1315, 1340, 1354, 7323 UT-GEO-LN-04: Parcels 1261, 1315, 1340, 1354, 7323 UT-GEO-LN-08: Parcels 1261, 1315, 1340, 1354, 7323	
NC	Paleontology	There are no known paleontological resources within the parcels. If an GDP is filed, specific clearances would be conducted and incorporated into that NEPA process. If paleontological resources are located, the AO would be contacted. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs. <u>Notices</u> UT-GEO-LN-03: Parcels 1261, 1315, 1340, 1354, 7323 UT-GEO-LN-05: Parcels 1261, 1315, 1340, 1354, 7323	/s/Stephanie deGraffenried 5/12/2021
NC	Wastes (hazardous or solid)	Hazardous materials are not known to exist on the parcels. Refer also to the Air Quality discussion for specific information on hazardous air pollutants (HAPs). Hazardous materials, if not handled properly that are associated with operations, have the potential to be spilled at the lease/drill site. However, the spill would be contained, reported, and cleaned up by the operator. BMPs, SOPs and site-specific mitigation may be applied at the GDP stage as COAs.	/s/ Stephanie deGraffenried 5/12/2021

Appendix E – Acronyms/Abbreviations

ACHP	Advisory Council for Historic Preservation	LN	Lease Notice
ACEC	Area of Critical Environmental Concern	MbFO	Moab Field Office
AO	Authorized Officer	MtFO	Monticello Field Office
APE	Area of Potential Effects	MBTA	Migratory Bird Treaty Act
ARMPA	Approved Resource Management Plan Amendments	MOU	Memorandum of Understanding
BCR	Bird Conservation Region	NEPA	National Environmental Policy Act
BLM	Bureau of Land Management	NESHAP	National Emission Standards for Hazardous Air Pollutants
BMP	Best Management Practice	NHPA	National Historic Preservation Act
CAA	Clean Air Act	NLAA	Not Likely to Adversely Affect
CCFO	Cedar City Field Office	NPS	National Park Service
CFR	Code of Federal Regulations	NRHP	National Register of Historic Places
CIAA	Cumulative Impact Analysis Area	NSO	No Surface Occupancy
COA	Conditions of Approval	PLPCO	Public Lands Policy Coordinating Office
CWCS	Comprehensive Wildlife Conservation Strategy	PARFDS	GRSG Population Area Reasonably Foreseeable Development Scenario
DOI	Department of the Interior	PFO	Price Field Office
DNA	Determination of NEPA Adequacy	PRMP	Proposed Resource Management Plan
DR	Decision Record	RFDS	Reasonably Foreseeable Development Scenario
EA	Environmental Assessment	RFO	Richfield Field Office
EAR	Environmental Analysis Record	RMP	Resource Management Plan
EIS	Environmental Impact Statement	ROD	Record of Decision
EOI	Expression of Interest	ROW	Right of Way
EPA	Environmental Protection Agency	S	Stipulation
ESA	Endangered Species Act	SLFO	Salt Lake Field Office
FEIS	Final Environmental Impact Statement	SHPO	State Historic Preservation Office
FFO	Fillmore Field Office	SITLA	State Institutional Trust Lands Administration
FLPMA	Federal Land Policy and Management Act	SOP	Standard Operating Procedures
FONSI	Finding of No Significant Impact	UDAQ	Utah Division of Air Quality
GIS	Geographical information System	UDWR	Utah Division of Wildlife Resources
GDP	Geothermal Drilling Permit	USFS	United States Forest Service
GRO	Geothermal Resource Order	USFWS	United States Fish & Wildlife Service
GRSG	Greater Sage-Grouse	UT	Utah
GWP	Global Warming Potential	UTSO	Utah State Office
H	Handbook	VFO	Vernal Field Office
IBLA	Interior Board of Land Appeals	VRM	Visual Resource Management
IDPRT	Interdisciplinary Parcel Review Team	WA	Wilderness Area
IM	Instruction Memorandum	WO	Washington Office
LWC	Lands with Wilderness Characteristics		

Appendix F –Comments and Responses [Reserved]

As defined in the NEPA Handbook (page 40), “an ‘issue’ is a point of disagreement, debate, or dispute with a proposed action based on some anticipated environmental effect. An issue is more than just a position statement, such as disagreement with grazing on public lands. An issue:

- Has a cause and effect relationship with the proposed action or alternatives;
- Is within the scope of the analysis;
- Has not been decided by law, regulation, or previous decision; and
- Is amenable to scientific analysis rather than conjecture.”

Comments that express a professional disagreement with the conclusions of the analysis or assert that the analysis is inadequate may or may not lead to changes in the DNA. Substantive comments and non-substantive comments are defined in the NEPA Handbook, H-1790-1, and section 6.9.2. The BLM National Environmental Handbook (H-1790-1) states that substantive comments do one or more of the following:

- Question, with reasonable basis the accuracy of information in the EIS or EA
- Question, with reasonable basis, the adequacy of methodology for, or assumptions used for the environmental analysis
- Present new information relevant to the analysis
- Present reasonable alternatives other than those analyzed in the EIS or EA
- Cause changes or revisions in one or more of the alternatives.

Comments that are not substantive or comments received after the close of the public comment period may not receive a response.

The BLM received [ongoing] public comment letters from [ongoing]. The [ongoing] comment letters were substantive comments as defined in the NEPA Handbook, H-1790-1, (section 6.9.2.). Minor changes to this [ongoing] may be made as a result of some comments that will be received during the 30-day public comment period.

Note: paragraph numbering was added. The public comment letters that are received will be published on ePlanning.

1.1. Modifications Based on Public Comment and Internal Review [Reserved]

The public comment period and corresponding internal review identified necessary corrections or clarifications to this DNA.

	Commenter	Comment	Response
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	Commenter	Comment	Response
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